ENVIRONMENTAL PROTECTION AGENCY

40 CFR Part 421

[FRL-2872-1]

Nonferrous Metals Manufacturing Point Source Category; Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards

AGENCY: Environmental Protection Agency (EPA).

ACTION: Final rule.

SUMMARY: This regulation establishes effluent limitations guidelines and standards limiting the discharge of pollutants into navigable waters and into publicly owned treatment works (POTW) by existing and new sources that conduct particular nonferrous metals manufacturing operations. The Clean Water Act and a consent decree require EPA to issue this regulation.

This regulation establishes effluent limitations guidelines based on "best practicable technology" (BPT) and "best available technology" (BAT), new source performance standards (NSPS) based on "best demonstrated technology", and pretreatment standards for existing and new indirect dischargers (PSES and PSNS, respectively).

DATES: In accordance with 40 CFR Part 23 (50 FR 7268); this regulation shall be considered issued for purposes of judicial review at 1:00 p.m. Eastern time on October 4, 1985. This regulation shall become effective November 4, 1985.

The compliance date for new source performance standards (NSPS) and pretreatment standards for new sources (PSNS) is the date the new source begins operations. The compliance date for pretreatment standards for existing sources (PSES) is September 20, 1988.

Under section 509(b)(1) of the Clean Water Act, judicial review of this regulation can be made only by filing a petition for review in the United States Court of Appeals within 90 days after the regulation is considered issued for purposes of judicial review. Under section 509(b)(2) of the Clean Water Act, the requirements in this regulation may not be challenged later in civil or criminal proceedings brought by EPA to enforce these requirements.

ADDRESSES: Address questions on the final rule to: Ms. Maria M. Irizarry, Industrial Technology Division (WH-552), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460, Attention: Nonferrous Metals Manufacturing Rules. The basis for this regulation is detailed in four major documents. See Supplementary Information (under "XIV. Availability of Technical Information") for a description of each document. Copies of the technical and economic documents may be obtained from the National Technical Information Service, Springfield, Virginia 22161 (703/487-6000). Technical information may be obtained by writing Ms. Maria M. Irizarry, Industrial Technology Division, U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460 or by calling 202/382-7126. Additional economic information may be obtained by writing Mr. Mark Kohorst, Economic Analysis Branch (WH-586), U.S. Environmental Protection Agency, 401 M Street, SW., Washington, DC 20460, or by calling 202/382-5397.

The record for the final rule will be available for public review not later than November 25, 1985, at the EPA Public Information Reference Unit, Room 2402 (Rear) (EPA Library). The EPA public information regulation (40 CFR part 2) provides that a reasonable fee may be charged for copying.

FOR FURTHER INFORMATION CONTACT: Ernst P. Hall, 202/382-7126.

SUPPLEMENTARY INFORMATION:

Organization of this Notice

I. Legal Authority

This regulation is being promulgated under the authority of sections 301, 304, 306, 307, 308, and 501 of the Clean Water Act (the Federal Water Pollution Control Act Amendments of 1972. 33 U.S.C. 1251 et seq., as amended by the Clean Water Act of 1977, Pub. L. 95-217) ("the Act"). This regulation is also being promulgated in response to the Settlement Agreement in Natural Resources Defense Council, Inc. v. Train, 8 ERC 2120 (D.D.C. 1976), modified, 12 ERC 1833 (D.D.C. 1979), modified by additional orders of October 26, 1982, August 2, 1983, and January 6, 1984.

II. Scope of this Rulemaking

This final regulation, which was proposed on June 27, 1984 (49 FR 26352), establishes effluent limitations guidelines and standards for existing and new nonferrous metals manufacturing facilities.

This preamble describes the legal authority and background, the technical and economic bases, and other aspects of the final regulations. The abbreviations, acronyms, and other terms used in the Supplementary Information section are defined in Appendix A to this notice.

These final regulations are supported by three major documents available on a limited basis from EPA and the National Technical Information Service. Analytical methods are discussed in Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants. EPA's technical conclusions are detailed in the General Development Document for Effluent Limitations Guidelines and Standards for the Nonferrous Metals Manufacturing Phase II Point Source Category and the subcategory supplements. The Agency's economic analysis is found in Economic Impact Analysis of Effluent Limitations Guidelines and Standards for the Nonferrous Metals Manufacturing Point Source Category.

A. Overview of the Category

The nonferrous metals manufacturing category is comprised of plants that process ore concentrates and scrap metals to recover and increase the metal purity contained in these materials. Depending on the metal and the desired purity, hydrometallurgical, pyrometallurgical, or liquid ion exchange operations may be used to purify and upgrade metal values.

The production of nonferrous metals sometimes occurs at plants that also have processes that are regulated as part of other point source categories. Many of the production operations characterizing the nonferrous metals manufacturing category follow mining and milling operations. The ore mining and dressing category includes the extraction of the ore from the ground and the subsequent beneficiation of the ore including gravity concentration, magnetic separation, electrostatic separation, froth flotation, and leaching to produce ore concentrates. The ore concentrates and scrap materials form the raw materials in the nonferrous metals manufacturing subcategories.

Following smelting, refining, or extraction of metal values included in the nonferrous metals manufacturing category, the metal or metal salt products are used as raw materials for such operations as forming, alloying, and the manufacture of inorganic chemicals. Operations such as these, where the metal purity is not increased, are covered by other point source categories. In many of the nonferrous metals manufacturing subcategories, the production operations cease with the casting of the smelted or refined metal. Recasting of the metal without refining for use in subsequent forming or alloying operations is covered by the point source category in which the metal is being used as a raw material such as Aluminum Forming, Nonferrous Metals Forming, or Metal Molding and Casting.

EPA has divided the nonferrous metals category into separate segments, nonferrous metals manufacturing phase I and nonferrous metals manufacturing phase II. In keeping with Agency priorities to regulate initially those plants which generate the largest quantities of toxic pollutants, EPA promulgated regulations for nonferrous metals manufacturing phase I (49 FR 8742) on March 8, 1984. Twelve subcategories were addressed: primary aluminum, copper smelting, copper electrolytic refining, lead, zinc, columbium-tantalum, tungsten, secondary aluminum, silver, copper, lead, and metallurgical acid plants.

EPA also has separately studied the forming or casting of nonferrous metals. EPA promulgated regulations for aluminum forming (48 FR 49126) in October, 1983, for copper forming (48 FR 36942) in August, 1983, and for forming of nonferrous metals other than aluminum and copper in August, 1985. Proposed regulations for metal molding and casting (47 FR 51512) were published in November, 1982.

Today's rulemaking focuses on the remaining segment of nonferrous metals manufacturing. The regulatory strategy for nonferrous metals manufacturing phase II addresses the following 25 subcategories:

Primary antimony,
Bauxite refining,
Primary beryllium,
Primary boron,
Primary cesium and rubidium,
Primary and secondary germanium and gallium,
Secondary Indium,
Primary lithium,
Primary magnesium,
Secondary mercury,
Metallurgical acid plants
Primary molybdenum and rhenium,
Secondary molybdenum and vanadium,
Primary nickel and cobalt,
Secondary nickel,
Primary precious metals and mercury,
Secondary precious metals,
Primary rare earth metals,
Secondary tantalum,
Secondary tin,
Primary and secondary titanium,
Secondary tungsten and cobalt,
Secondary uranium,
Secondary zinc, and
Primary zirconium and hafnium.

EPA is completely excluding five of these subcategories from national regulation. Primary lithium and secondary zinc are excluded because the repoduction of these metals does not require process water. Primary magnesium is excluded because the production of magnesium does not produce wastewater with treatable concentrations of pollutants. Primary boron is excluded from regulation because there are no existing dischargers and we do not believe new discharging plants are likely to be built. Primary cesium and rubidium plants are excluded from national regulation because the amount and toxicity of discharges are so small that they do not justify national regulations. The remaining 20 subcategories in nonferrous metals manufacturing phase II contain 31 primary metals and metal groups, 20 secondary metals and metal groups, and bauxite refining.

At proposal, phase II metallurgical acid plants were included within the primary molybdenum and rhenium subcategory because they are associated with molybdenum roasting operations. However, as indicated at proposal, these plants will not be regulated as part of the primary molybdenum and rhenium subcategory but rather as part of the pre-existing metallurgical acid plant subcategory (49 FR 26418). To clarify this distinction, the metallurgical acid plants are included in a separate subcategory for purposes of this final rulemaking. The limits and supporting analysis presented for these facilities at proposal and the notice of availability continue to aply.

As explained in more detail at proposal, EPA stated on May 10, 1979 that it did not intend to establish national regulations for four of the remaining 20 subcategories covered by this rule: primary antimony, primary tin, secondary molybdenum, and secondary tantalum. This decision has been reconsidered and effluent limitations guidelines and standards for these subcategories were included in this rulemaking at proposal. A complete explanation of the subcategories covered and excluded from this rulemaking is provided in Section VIII of this preamble.

With respect to the primary and secondary tin subcategory, the Agency has determined since proposal that primary tin is presently not being produced in this country. EPA has, therefore changed the title of the tin subcategory from primary and secondary tin to secondary tin.

B. Prior EPA Regulations

EPA already has promulgated effluent limitations guidelines and standards for certain nonferrous metals manufacturing subcategories. These regulations and the technological basis for them are summarized below.

Bauxite Refining Subcategory. EPA has promulgated BPT, BAT, NSPS, and PSNS in this subcategory. 39 FR 12825 (April 8, 1974). BPT, BAT, NSPS, and

PSNS are based on zero discharge of process wastewater, but do allow for a monthly net precipitation discharge from red mud impoundments.

Metallurgical Acid Plants. This subcategory was initially established in 1980, and at that time included only acid plants (i.e., plants recovering by-product sulfuric acid from sulfur dioxide smelter air emissions) associated with primary copper smelting operations. See 45 FR 44926. Primary lead and zinc plants also have associated acid plants, and consequently the applicability of the metallurgical acid plant subcategory was expanded to include these sources in the phase I regulation finalized on March 8, 1984 (49 FR 8742). Today we are amending the existing regulation for metallurgical acid plants by modifying the applicability of the metallurgical acid plant subcategory to include molybdenum acid plants as well.

Nonferrous Metals Manufacturing Phase I. As discussed above, EPA promulgated rules for nonferrous metals manufacturing Phase I on March 8, 1984 (49 FR 8742), which established BPT, BAT, NSPS, PSES, and PSNS for twelve subcategories.

Nonferrous Metals Forming. As also discussed above, EPA promulgated rules for the forming of nonferrous metals other than aluminum and copper in August, 1985. EPA promulgated related regulations for aluminum forming (48 FR 49126) in October, 1983 and for copper forming (48 FR 36942) is August 1983.

III. Summary of Legal Background

The Federal Water Pollution Control Act Amendments of 1972 established a comprehensive program to "restore and maintain the chemical, physical, and biological integrity of the Nation's waters," Section 101(a). To implement the Act, EPA was to issue effluent limitations guidelines, pretreatment standards and new source performance standards for industrial dischargers.

The Act included a timetable for issuing these standards. However, EPA was unable to meet many of the deadlines and, as a result in 1976, it was sued by several environmental groups. In settling this lawsuit, EPA and the plaintiffs executed a "Settlement Agreement" which was approved by the District Court. This Agreement required EPA to develop a program and adhere to a schedule in promulgating effluent limitations guidelines, pretreatment standards, and new source performance standards for 65 "priority" pollutants and classes of pollutants for 21 major industries. See *Natural Resources Defense Council, Inc.* v. *Train*, 8 ERC 2120 (D.D.C. 1976), modified, 12 ERC 1833 (D.D.C. 1979), modified by additional orders of October 26, 1982, August 2, 1983, January 6, 1984, July 5, 1984 and January 7, 1985.

Many of the basic elements of the Settlement Agreement were incorporated into the Clean Water Act of 1977. Like the agreement, the Act stressed control of toxic pollutants, including the 65 priority pollutants. In addition, to strengthen the toxics control program, Section 304(e) of the Act authorizes the Administrator to prescribe "best management practices" ("BMP") to prevent the release of toxic and hazardous pollutants from plant site runoff, spillage or leaks, sludge or waste disposal, and drainage from raw material storage associated with, or ancillary to, the manufacturing or treatment process.

Under the Act, the EPA is to set a number of different kinds of effluent limitations. These are discussed in detail in the preamble to the proposed regulations and in the Development Document. They are summarized briefly below:

1. Best Practicable Control Technology (BPT)

BPT limitations are generally based on the average of the best existing performance by plants of various sizes, ages, and unit processes within the category or subcategory.

In establishing BPT limitations, EPA considers the total cost in relation to the age of equipment and facilities involved, the processes employed, process changes required, engineering aspects of the control technologies, and nonwater quality environmental impacts (including energy requirements). The total cost of applying the technology is balanced against the effluent reduction.

2. Best Available Technology (BAT)

BAT limitations, in general, represent the best existing performance in the industrial subcategory or category. The Act establishes BAT as the principal national means of controlling the direct discharge of toxic and nonconventional pollutants to navigable waters.

In arriving at BAT, the Agency considers the age of the equipment and facilities involved, the process employed, the engineering aspects of the control technologies, process changes, the cost of achieving such effluent reduction, and nonwater quality environmental impacts. The Agency retains considerable discretion in assigning the weight to be accorded these factors.

3. Best Conventional Pollutant Control Technology (BCT)

The 1977 Amendments added Section 301(b)(2)(E) to the Act establishing "best conventional pollutant control technology" (BCT) for discharges of conventional pollutants from existing industrial point sources. Section 304(a)(4) designated the following as conventional pollutants: biochemical oxygen demanding pollutants (BOD_5), total suspended solids (TSS), fecal coliform, pH, and any additional pollutants defined by the Administrator as conventional. The Administrator designated oil and grease, an additional conventional pollutant on July 30, 1979 (44 FR 44501).

BCT is not an additional limitation but replaces BAT for the control of conventional pollutants. In addition to other factors specified in Section 304(b)(4)(B), the Act requires that BCT limitations be established in light of a two part "cost-reasonableness" test, American Paper Institute v. EPA, 660 F.2d 954 (4th Cir. 1981). The first test compares the cost for private industry to reduce its conventional pollutants with the costs to publicly owned treatment works to achieve similar reduction of these pollutants. The second test examines the cost-effectiveness of additional industrial treatment beyond BPT. EPA must find that limitations are "reasonable" under both tests before establishing them as BCT. In no case may BCT be less stringent than BPT.

EPA published its methodology for carrying out the BCT analysis on August 29, 1979 (44 FR 50372). In the case mentioned above, the Court of Appeals ordered EPA to correct data errors underlying EPA's calculation of the first test, and to apply the second cost test. (EPA had argued that a second cost test was not required.)

A revised methodology for the general development of BCT limitations was proposed on Octover 29, 1982 (47 FR 49176), but has not been promulgated as a final rule. We accordingly are not promulgating BCT limits for plants in the nonferrous metals manufacturing phase II category at this time. We will await establishing nationally applicable BCT limits for this industry until promulgation of the final methodology for BCT.

4. New Source Performance Standards (NSPS)

NSPS are based on the best available demonstrated technology (BDT). New plants have the opportunity to install the best and most efficient production processes and wastewater treatment technologies.

5. Pretreatment Standards for Existing Sources (PSES)

PSES are designed to prevent discharge of pollutants that pass through, interfere with, or are otherwise incompatible with the operation of publicly owned treatment works (POTW). They must be achieved within three years of promulgation. The Clean Water Act of 1977 requires pretreatment for toxic pollutants that pass through the POTW in amounts that would violate direct discharger effluent limitations or interfere with the POTW's treatment process or chosen sludge disposal method. The legislative history of the 1977 Act indicates that pretreatment standards are to be technology-based, analogous to the best available technology for removal of toxic pollutants. EPA has generally determined that pollutants pass through a POTW if the nationwide average percentage of pollutants removed by a well operated POTW achieving secondary treatment is less than the percent removed by the BAT model treatment system. The General Pretreatment Regulations, which serve as the framework for the pretreatment regulations, are found at 40 CFR Part 403. These regulations were recently upheld substantially in *NAMF et al.* v. *EPA*, Nos. 79-2256 et al. (3rd Cir., September 20, 1983).

6. Pretreatment Standards for New Sources (PSNS)

Like PSES, PSNS are designed to prevent the discharge of pollutants which pass through, interfere with, or are otherwise incompatible with the operation of a POTW. PSNS are to be issued at the same time as NSPS. New indirect dischargers, like new direct dischargers, have the opportunity to incorporate in their plant the best available demonstrated technologies. The Agency considers the same factors in promulgating PSNS as it considers in promulgating PSES.

IV. Methodology and Data Gathering Efforts

The methodology and data gathering efforts used in developing this final regulation were summarized in the "Preamble to the Proposed Nonferrous Metals Manufacturing Point Source Category Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards" (49 FR 26352, June 27, 1984), and described in detail in the Development Document for Effluent Limitations Guidelines and Standards for the Nonferrous Metals Manufacturing Point Source Category.

After proposal, the Agency gathered additional data to clarify comments and to provide further support for the regulation. The Agency performed additional analysis of new and existing data. These additional data and analyses are described in a "Notice of Data Availability and Request for Comment" (50 FR 10918, March 18, 1985) and are discussed briefly below. The data are also described in substantial detail in the appropriate sections of the General Development Document and the supplements. The supporting information and additional data are in the record supporting this final rule.

In addition, since proposal, the Agency made engineering visits to three nonferrous metals manufacturing plants. Analytical data gathered at these plants were used to further characterize wastewaters generated in secondary tin, secondary molybdenum, and vanadium, and secondary uranium subcategories. We also used the analytical data to revise compliance costs and pollutant removal estimates.

EPA is also using data gathered from engineering and sampling visits to nine nonferrous metals forming plants to collect process, flow and chemical analysis data. The nine plants are involved in the metal powder (iron, copper and aluminum), nickel-cobalt, titanium, zirconium-hafnium, refractory metals, precious metals or uranium subcategories. Trip reports from these plant visits that were claimed confidential by the companies are in the confidential record; the rest are in the public record. The Agency also gathered data collection portfolios (dcp's) from plants not in the Agency's data base at the time we issued the proposed regulation.

New data obtained by the Agency since proposal have been carefully analyzed and, where appropriate, changes have been made to the regulation. Flow allowances for a number of waste streams have been revised. Mass limitations have also been provided for several waste streams not receiving allowances at proposal. In addition there have been a number of modifications in pollutants regulated and in the selected technology basis for various subcategories.

These changes are identified in Section V and discussed in greater detail in the accompanying development documents for the subcategories affected.

The costing methodology used in estimating compliance costs is discussed in detail in the Preamble to the proposed regulation (49 FR 26377). Generally, segregation and separate treatment has been used as the basis for estimating compliance costs for this rulemaking; however, for five plants there are manufacturing operations from more than one subcategory subject to this rulemaking. For four of these plants the technology basis of the subcategories is the same and in the fifth, the more costly technology was costed for the entire wastewater flow.

Under the authority of Section 308 of the Clean Water Act, the Agency requested specific additional information from 14 subcategories both to clarify and support individual comments and to gather additional data primarily concerning specific wastewater sources, flows, pollutant concentrations, production levels, treatment effectiveness, and costs. A brief description of additional data solicited for each subcategory is presented below. All information and data received has been placed in the public record unless it has been claimed confidential.

Primary Antimony

We requested additional information through Section 308 information requests in the primary antimony subcategory concerning the wastewater characteristics of fouled anolyte and an additional wastestream not considered at proposal, cathode antimony wash water.

Primary Beryllium

We requested additional information through Section 308 information requests in the primary beryllium subcategory concerning the effectiveness of the wastewater treatment systems for metals removal and the range of pollutant concentrations in the untreated wastewaters from this subcategory.

Primary Cesium and Rubidium

We requested additional information through Section 308 information requests in the primary cesium and rubidium subcategory concerning the wastewater characteristics of spent acid and crystallizer rinse water from cesium production, spent acid and crystallizer rinse water from rubidium production.

Primary and Secondary Germanium & Gallium

We requested additional information through Section 308 information requests in the primary and secondary germanium and gallium subcategory concerning the wastewater characteristics of still liquor, chlorinator wet air pollution control, germanium hydrolysis filtrate and acid wash and rinse water.

Primary Molybdenum and Rhenium

We requested additional information through Section 308 information requests in the primary molybdenum and rhenium subcategory concerning the wastewater characteristics of molybdic oxide leachate. We also requested production information on certain products.

Secondary Molybdenum and Vanadium

We requested additional information through Section 308 information requests in the secondary molybdenum and vanadium subcategory concerning iron coprecipitation tests, cost estimates for solvent extraction, segregation, ammonia steam stripping, iron coprecipitation, and performance of two stage solvent extraction system for molybdenum removal.

Primary Precious Metals and Mercury

We requested additional information through Section 308 information requests in the primary precious metals and mercury subcategory concerning the wastewater characteristics of electrolyte preparation wet air pollution control, silver crystals wash water, gold slimes acid wash and water rinse, and silver chloride reduction spent solution.

Secondary Precious Metals

We requested additional information through Section 308 information requests in the secondary precious metals subcategory concerning the wastewater characteristics of platinum precipitation and filtration, other platinum group metals precipitation and filtration, gold spent electrolyte, raw material granulation, and gold solvent extraction raffinate and wash water. We also requested clarification of test results submitted in comments, supporting data for cost estimates for ion exchange submitted in comments, and further data on the formation of metal amine complexes in secondary precious metals wastewaters.

Primary Rare Earth Metals

We requested additional information through Section 308 information requests in the primary earth metals subcategory concerning the wastewater characteristics of the sodium hypochlorite filter backwash.

Secondary Tantalum

We requested additional information through Section 308 information requests in the secondary tantalum subcategory concerning the wastewater characteristics of tantalum sludge leach and rinse, and leaching wet air pollution control. We also requested production data on certain products.

Secondary Tin

We requested additional information through Section 308 information requests in the secondary tin subcategory concerning the wastewater characteristics of tin mud acid neutralization filtrate and dealuminizing rinse. We also requested additional economic information from five of the plants, and clarification of cost estimates provided by commenters on lime, settle and filter, and analytical results from commenters of samples replicating EPA's analyses.

Primary and Secondary Titanium

We requested additional information through Section 308 information requests in the primary and secondary titanium subcategory concerning the wastewater characteristics of casting crucible wash water cathode gas wet air pollution control, chlorination off-gas wet air pollution control, chlorination area-vent wet air pollution control, titanium tetrachloride handling wet air pollution control, sodium reduction container reconditioning wash water, chip crushing wet air pollution control and sponge crushing and screening wet air pollution control.

Secondary Tungsten and Cobalt

We requested additional information through Section 308 information requests in the secondary tungsten and cobalt subcategory concerning the wastewater characteristics of synthetic scheelite filtrate, tungsten carbide leaching wet air pollution control, tungsten carbide wash water, reduction area wet air pollution control. We also requested production data on certain products and sent dcp's to seven secondary tungsten and cobalt plants. Responses to four of these requests have been received.

Primary Zirconium and Hafnium

We requested additional information through Section 308 information requests in the primary zirconium and hafnium subcategory concerning the wastewater characteristics of sand drying wet air pollution control, sand chlorination off-gas wet air pollution control, sand chlorination area-vent wet air pollution control, silicon tetrachloride ($SiCl_4$) purification waste acid, feed makeup, wet air pollution control, zirconium filtrate, hafnium filtrate, calcining caustic wet air pollution control, pure chlorination wet air pollution control, reduction area-vent wet air pollution control, magnesium recovery off-gas wet air pollution control, and magnesium recovery area-vent wet air pollution control.

We also requested additional information on operation of ammonia steam strippers, analytical tests for cyanide, and recycle rates for several scrubbers.

V. Control Treatment Options and Technology Basis for Final Regulation

A. Summary of Category

There are 143 plants in the 20 regulated phase II subcategories which EPA estimates employ 13,500 people and annually generate raw wastes containing approximately 489,800 kilograms of toxic pollutants. There are 34 direct discharges which currently discharge 341,400 kg/yr of toxic pollutants and there are 39 indirect discharges which currently discharge an additional 77,980 kg/yr of toxics. There are 70 plants in this category that do not discharge process wastewater. In the five subcategories that we are excluding from national regulation there is one direct discharger, one that discharges through another plant, and 15 plants that do not discharge wastewater

In developing this regulation, it was necessary to determine whether effluent limitations and standards were appropriate for different segments (subcategories) of the category. The major factors considered in assessing the need for subcategorization and in identifying subcategories included: waste characteristics, raw materials, manufacturing processes, products manufactured, water use, water pollution control technology, treatment costs, solid waste generation, size of plant, age of plant, number of employees, total energy requirements, nonwater quality characteristics, and unique plant characteristics. Section IV of the Development Document and its supplements contain a detailed discussion of these factors and the rationale for subcategorization.

A brief description of each of the 20 subcategories is provided below, with particular emphasis on the sources of wastewater and the types of pollutants present. Also noted below are changes in flows and building blocks that the Agency has made as a result of comments, information and further analysis following proposal. For a more detailed explanation of the manufacturing processes see the preamble discussion for each subcategory in the proposal. Section V of the subcategory supplement Development Documents provides specific characterization data on each of the wastewater sources.

We are promulgating discharge limitations for each of the wastewater sources identified below except for bauxite. The effluent limtations for an individual plant would then be the sum of all limitations for those wastewater sources actually present at the plant.

Primary Antimony

Seven of the eight primary antimony plants in the United States are zero dischargers. One primary antimony plant is a direct discharger. The eight plants are geographically scattered, located in seven states across the country. The oldest plant was built in the 1880's, and three other are more than 30 years old. Two plants have been built within the last 10 years. EPA data show that average plant production is approximately 500 kkg per year of antimony and antimony compounds.

The processes used at a primary antimony production facility depend largely on the raw material used and the final product desired. Pyrometallurgical processing, practiced at five of the eight primary antimony plants, generates no process wastewater. Hydrometallurgical processing, practiced at the remaining three plants, generates wastewater.

The sources of process wastewater receiving an allowance in the primary antimony subcategory are listed below, along with the pollutants typically found in each:

(1) Sodium antimonate autoclave wastewater is generated when the clarified solution from leaching is autoclaved. Dissolved antimony is converted to sodium antimonate as a final product. This stream is similar to fouled anolyte and contains suspended solids and toxic metals.

The BPT, BAT, NSPS and PSNS wastewater discharge allowance proposed for sodium antimonate autoclave wastewater was 7,093 l/kkg (1,700 gal/ton) of antimony contained in the sodium antimonate product.

The BPT, BAT, NSPS, and PSNS wastewater discharge allowance promulgated for sodium antimonate autoclave wastewater is 15,624 l/kkg (3,744 gal/ton) of antimony contained in sodium antimonate product. This rate is allocated to any plant which produces sodium antimonate from a caustic leaching solution by autoclaving. No allowance is given when sodium antimonate is recovered by autoclaving fouled anolyte because in that case, autoclaving is considered to be a wastewater treatment step for product recovery.

No recycle or reuse of this wastewater is reported at the one plant that generates this stream. Because that plant did not provide flow rate information in the dcp, the discharge allowance for sodium antimonate autoclave wastewater is assumed to be equivalent to the promulgated discharge allowance for fouled anolyte, using the antimony content of the product as the production normalizing parameter. Industry comments on the proposed rulemaking which included new flow and production data for the fouled anolyte waste stream resulted in a change from the proposed value. For this reason and those stated above, the promulgated discharge allowance for sodium antimonate autoclave wastewater is 15,624 l/kkg.

(2) Fouled anolyte is generated when a portion of the barren electrowinning solution is discharged. This waste stream contains suspended solids and toxic metals.

The BPT, BAT, NSPS, and PSNS wastewater discharge allowance proposed for fouled anolyte was 7,093 l/kkg (1,700 gal/ton) of antimony metal produced by electrowinning. The BPT allowance was based on the discharge rate at the only plant reporting this stream. That plant recovers and recycles sodium antimonate from the fouled anolyte before discharging the waste stream. Since proposal, industry comments which included flow and production information enabled EPA to recalculate production normalized flows. Based on this data, a new regulatory flow was chosen for the fouled anolyte waste stream.

The BPT, BAT, NSPS, and PSNS wastewater discharge allowance promulgated for fouled anolyte is 15,624 l/kkg (3,744 gal/ton) of antimony metal produced by electrowinning. This rate is allowed to any plant which recovers antimony from a pregnant leaching solution by electrowinning. The promulgated BPT allowance is based on the wastewater discharge rate at the only plant reporting this waste stream.

(3) Cathode antimony wash water is generated by washing the pure antimony product which has collected on a host cathode with water. This waste stream contains treatable concentrations of toxic metals such as antimony, arsenic, lead and copper.

A BPT discharge rate for cathode antimony wash water was not proposed because dcp information used at proposal did not quantify the wastewater discharge from this operation, leading EPA to believe that it was insignificant.

Comments received from industry after proposal requesting an allowance for cathode antimony wash water supplied information which allowed water use and discharge rates to be calculated. The Agency has added this new building block to the subcategory.

The promulated BPT wastewater discharge rate for cathode antimony wash water is 31,248 l/kkg (7,488 gal/ton) of antimony metal produced by electrowinning. This rate is allocated to those plants which wash antimony metal produced by electrowinning prior to final packaging. the promulgated BPT flow is based on the discharge from one plant reporting this stream.

Bauxite Refining

Of the eight bauxite refining plants in the United States, four are direct dischargers and four are zero dischargers. Eight of the plants are located in the states of Louisiana, Texas, Arkansas, and Alabama. The other plant is located in the U.S. Virgin Islands. Plant age ranges from 15 to 44 years with an average of about 30 years. EPA data show that plant production ranges from 37,000 to 570,000 kkg per year; one of the plants is closed but continues to discharge and four of the remaining eight plants produce between 200,000 and 300,000 kkg per year, measured as aluminum contained in refined bauxite.

The processes used at a bauxite refinery depend largely on the raw material used and the final product desired. In general, plants use the Bayer process or a variation known as the combination process.

The source of process wastewater in the bauxite refining subcategory is mud impoundment effluent discharged from the mud disposal lake in areas of net precipitation. The effluent is characterized by high pH and the presence of phenolic compounds. We solicited comments at proposal on the need for limitations which would control phenols in the net precipitation discharge. We specifically requested data on the presents of phenols as well as other toxic and nonconventional pollutants in discharges from bauxite plants. Commenters provided recently collected data from their red mud lakes showing levels below the limit of detection for all phenolic compounds except phenol. Moreover, the new data submitted indicates that we may have overestimated the amounts of phenols in the net precipitation discharge from bauxite red mud lakes. As a result the Agency has decided not to establish additional national effluent limitations guidelines and standards for this subcategory.

Primary Beryllium

The primary beryllium industry in the United States currently consists of three plants, two of which are owned by the same company. One of the plants is located in Utah near the beryllium ore mining operations. This facility processes the raw materials to an intermediate product, beryllium hydroxide. The beryllium hydroxide is shipped to the second facility, located in Ohio, where it is further processed to final product forms. The plant which produces beryllium hydroxide in Utah began operations in 1979 and achieves zero discharge through the use of evaporation ponds. The facility in Ohio which produces beryllium metal and other products including beryllium oxide and beryllium copper alloy is a direct discharger which began operations in 1957. The third plant purchases beryllium hydroxide from the Utah plant to produce beryllium oxide and beryllium copper alloys. This facility does not generate wastewaters subject to this rulemaking.

The production of beryllium products can be divided into three distinct operations—production of beryllium hydroxide from beryllium ores, production of beryllium oxide from beryllium hydroxide, and production of beryllium metal from beryllium hydroxide. Most domestic beryllium is extracted from bertrandite ore mined in Utah. Imported and domestically produced beryl ore is another potential raw material for the primary beryllium industry.

The sources of process wastewater receiving an allowance in the primary beryllium subcategory are listed below, along with pollutants typicaly found in each:

(1) Solvent extraction raffinate from bertrandite ore processing is generated when bertrandite ore is leached with sulfuric acid and beryllium is extracted from the resultant solution with an organic solvent. This stream is characterized by a low pH and the presence of toxic metals.

Commenters also requested an increase in the PNF for solvent extraction raffinate from bertrandite ore. However, the Agency determined that the difference between the industry's PNF and the proposed one was essentially nil. We are promulgating the PNF for this subdivision as proposed.

(2) Solvent extraction raffinate from beryl ore processing is generated when beryl ore is leached with sulfuric acid and beryllium is extracted from the resultant solution with an organic solvent. This wastewater has an acid pH and contains toxic metals.

The BPT, BAT, NSPS, and PSNS wastewater discharge rate proposed for solvent extraction raffinate from beryl ore was 200,000 l/kkg (47,900 gal/ton) of beryllium carbonate precipitated (as beryllium). This rate was allocated only for those plants which extract beryllium from an acid solution generated by leaching beryl ore. After proposal, EPA received comments from industry which provided new flow and production for this waste stream. The Agency evaluated the data and is promulgating a new discharge rate.

The BPT, BAT, NSPS, and PSNS wastewater discharge rate promulgated for solvent extraction raffinate from beryl ore is 220,000 l/kkg (52,720 gal/ton) of beryllium carbonate precipitated (as beryllium). This rate is allocated only for those plants which extract beryllium from an acid solution generated by leaching beryl ore.

(3) Beryllium carbonate filtrate results from the precipitation of beryllium carbonate which is separated from the aqueous phase by filtration. This wastewater stream is characterized by the presence of toxic metals.

(4) Beryllium hydroxide filtrate is generated when beryllium carbonate is redissolved in water and beryllium is reprecipitated as beryllium hydroxide. The resultant filtrate stream contains toxic metals.

(5) Beryllium oxide calcining furnace wet air pollution control wastewater results from the use of wet scrubbing to control sulfur dioxide emissions from beryllium oxide calcining furnaces. This wastewater is characterized by the presence of toxic metals.

The proposed and promulgated BPT wastewater discharge rate for beryllium oxide calcining furance wet air pollution control is 263,700 l/kkg (63,190 gal/ton) of beryllium oxide produced. This rate is allocated only for those plants which use wet air pollution control devices to control emissions from beryllium oxide calcining furnaces. There is currently only one plant which practices this operation.

The proposed BAT, NSPS, and PSNS discharge rate for beryllium oxide calcining furance wet air pollution control water was based on 90 percent recycle of the scrubber effluent (refer to Section VII of the General Development Document). Consequently, the proposed BAT, NSPS, and PSNS production normalized discharge flow for beryllium oxide calcining furnace wet air pollution control was 26,373 l/kkg (6,320 gal/ton) of beryllium oxide produced.

Since proposal, industry comments to EPA have indicated that recycle is presently practiced for the beryllium oxide calcining furnace scrubber at a rate greater than 90 percent, and to require additional recycle at BAT would be unachievable. Upon evaluation of the data, the Agency decided not to base its standards on recycle beyond what is presently practiced. The promulgated BAT, NSPS, and PSNS discharge allowance for beryllium oxide calcining furnace wet air pollution control is 263,700 l/kkg (63,190 gal/ton) of beryllium oxide produced. This discharge rate is equivalent to that promulgated at BPT.

(6) Beryllium hydroxide supernatant from beryllium recovery is generated when beryllium is recovered from waste materials by dissolution in sulfuric acid and precipitation as beryllium hydroxide. The resultant supernatant stream is characterized by the presence of toxic metals.

The BPT, BAT, NSPS, and PSNS wastewater discharge rate proposed for beryllium hydroxide supernatant was 104,324 l/kkg (25,000 gal/ton) of beryllium hydroxide produced from scrap and residues (as beryllium). This rate was allocated only for those plants which recover beryllium from residues and scrap by dissolution in sulfuric acid and precipitation of beryllium as beryllium hydroxide. After proposal, EPA received comments from the industry which presented new flow and production data for this waste stream. The Agency evaluated the data and is promulgating a new discharge rate.

The BPT, BAT, NSPS and PSNS wastewater discharge rate promulgated for beryllium hydroxide supernatant is 230,000 l/kkg (55,120 gal/ton) of beryllium hydroxide produced from scrap and residues (as beryllium). This rate is allocated only for those plants which recover beryllium from residues and scrap by dissolution in sulfuric acid and precipitation of beryllium as beryllium hydroxide.

(7) Process water (formerly process condensates at proposal) are generated by crystallizers and evaporators used in the production of beryllium metal. These condensate streams are characterized by the presence of fluoride.

At proposal, no wastewater discharge allowance for process condensates was provided. Only one plant generates process condensates from the manufacture of beryllium metal. Based on the available data, EPA believed that this facility reuses all of this water in fume scrubbing systems and other plant uses.

Industry comments after proposal clarified the process condensates collection and reuse system, and indicate that periodic discharges of process water have to be made in order to prevent dissolved solids buildup. Information was supplied to the Agency so that a discharge rate for process water could be calculated.

The BPT wastewater discharge rate promulgated for process water is 174,800 l/kkg (41,890 gal/ton) of beryllium pebbles produced. This rate is allocated only for those plants which collect process condensates generated from the manufacture of beryllium metal and discharge this process water after extensive recycle in various plant applications.

(8) Fluoride furnace scrubber wastewater results from the use of wet scrubbers to recover ammonium fluoride from the exhaust gases from the beryllium fluoride furnace. This wastewater contains toxic metals and fluoride.

The BPT, BAT, NSPS, and PSNS wastewater discharge rate proposed for fluoride furnace scrubber water was 2,205 l/kkg (530 gal/ton) of beryllium metal pebbles produced. This rate was allocated only for those plants which produce beryllium fluoride (BeF_2) intermediate by heating ammonium beryllium fluoride in a furnace. There is currently only one plant which practices this operation.

The BPT, BAT, NSPS, and PSNS wastewater discharge rate promulgated for fluoride furnance scrubber wastewater is zero. Presently, one plant operates a scrubber which obtains makeup water from the process water pit, and recycles a scrubber liquor bleed stream back to the process. Because a separate discharge allowance is being promulgated for process water discharge, the Agency did not believe it necessary to give an additional discharge allowance for fluoride furnace scrubber wastewater. The BPT wastewater discharge rate for beryllium pebble plant area vent scrubber wastewater is based on information supplied by the only plant presently operating such a scrubber.

(9) Chip treatment (formerly chip leaching at proposal) wastewater is generated when pure beryllium metal in the form of chips is leached with nitric acid and rinsed prior to being vacuum cast. This wastewater stream is characterized by a low pH and the presence of toxic metals.

The BPT, BAT, NSPS and PSNS wastewater discharge rate for chip treatment wastewater was 4,742 l/kkg of beryllium chips leached. After proposal, EPA received comments from the industry which presented new flow and production data for this waste stream. The Agency evaluated the new data and is promulgating a new discharge rate.

The BPT, BAT, NSPS and PSNS wastewater discharge rate for chip treatment wastewater was 7,750 l/kkg of beryllium chips treated. This rate is allocated only to those plants which treat pure beryllium chips by acid leaching prior to vaccum casting.

(10) Beryllium pebble plant area-vent wet air pollution control wastewater results from the use of wet scrubbing to control particulate emissions from the beryllium pebble plant. This wastewater stream is slightly acidic and contains treatable concentrations of beryllium and fluoride.

At proposal there was no wastewater discharge allowance proposed for this subdivision because the Agency was not aware that this building block existed at any primary beryllium facilities. The Agency has added this new subdivision because we received new information since proposal which indicates that this operation exists at one facility. The scrubber utilizes recirculating process water and does not have a discrete discharge. The water which circulates through the scrubber is discharged as part of the process water building block. Therefore, the promulgated BPT, BAT, NSPS, and PSNS wastewater discharge allowance for beryllium pebble plant area vent wet air pollution control is 0 l/kkg of beryllium metal produced.

Primary and Secondary Germanium and Gallium

Of the five primary and secondary germanium and gallium plants in the United States, one is an indirect discharger and four are zero dischargers. There are no direct dischargers. One plant is located in Pennsylvania, two are in the Oklahoma-Texas region, and two are in the far western part of the country. Germanium and gallium plants are located near sources of raw materials, either zinc ore deposits or major electronics firms. All five plants were built within the last 25 years, with two built within the last three years. The average plant age is 12 years.

The processes used at a germanium or gallium production facility depend largely on the raw material used and the final product desired. Germanium and gallium are produced from both primary and secondary raw materials, however the processing steps are essentially the same, hydrometallurgical.

The sources of process wastewater receiving an allowance in the germanium and gallium subcategory are listed below, along with the pollutants typically found in each:

(1) Still liquor wastewater results from the excess hydrochloric acid used to chlorinate germanium raw material, and the impurities in the germanium raw material. This wastewater contains toxic metals, low pH, and suspended solids.

(2) Chlorinator wet air pollution control wastewater results from wet scrubbers used to control acid and chlorine fumes generated during the reduction of germanium tetrachloride. Chlorinator wet air pollution control wastewater contains toxic metals and suspended solids.

(3) Germanium hydrolysis filtrate wastewater results from the depleted solution after germanium tetrachloride is reacted with water to produce germanium dioxide solids. This wastewater is characterized by toxic metals and suspended solids.

(4) Acid wash and rinse water wastewater is produced by the hydrofluoric acid-nitric acid wash, followed by water rinse, or germanium bars prior to zone refining. This wastewater contains germanium, and has a low pH and high fluoride content.

(5) Gallium hydrolysis filtrate wastewater results from the depleted solution after gallium trichloride is reacted to produce hydrated gallium solids. This wastewater is characterized by toxic metals and suspended solids.

(6) Solvent extraction raffinate wastewater results from the acid solution in which gallium scrap is dissolved prior to being extracted into an organic phase, from which pure metal is recovered. This wastewater is expected to contain toxic organics, metals, and suspended solids.

Secondary Indium

There is one facility currently producing secondary indium in the United States. This facility is an indirect discharger located in the northeastern United States. Plant operations began approximately 50 years ago.

The principal raw materials used for secondary indium production are scrap indium metal and spent electrolyte solutions from secondary silver refining operations.

Leaching and precipitation are the principal operations in the production of secondary indium. Indium scrap is leached with hydrochloric acid to dissolve the indium and produce an indium-laden solution.

The sources of process wastewater receiving an allowance in the secondary indium subcategory are listed below, along with pollutants typically found in each:

(1) Displacement tank effluent is generated when indium sponge is produced by displacing indium ions from solution with zinc. This

wastewater is characterized by the presence of toxic metals and suspended solids.

(2) Spent electrolyte wastewater results from discharging contaminated electrolyte solution from electrolytic refining operations. This wastewater is characterized by an acid pH and the presence of toxic metals and suspended solids.

Secondary Mercury

All four of the secondary mercury plants in the United States are zero dischargers. One plant achieves this discharge status by contractor disposal of process wastewater, one by complete recycle, and two plants operate dry processes. Two of the four plants are located near the industrial centers of the Northeast, one is in Illinois, and one in California. All four secondary mercury plants were built after World War II. The average plant age is 30 years. EPA data show that plant production ranges from less than 25 tons to mercury per year to 100 tons per year, with mean production approximately 55 tons per year.

The processes used at a secondary mercury production facility depend largely on the raw material used and the purity of final product desired.

The sources of process wastewater receiving an allowance in the secondary mercury subcategory are listed below, along with the pollutants typically found in each:

(1) Spent battery electrolyte wastewater results from draining spent electrolyte from mercuric oxide batteries prior to recovering mercury by distillation. This wastewater is characterized by toxic metals, suspended solids, and a low pH.

(2) Acid wash and rinse water wastewater is generated by washing distilled mercury with dilute nitric acid and rinsing it with water in order to further purify the mercury product. This wastewater contains toxic metals and suspended solids.

(3) Furnance wet air pollution control wastewater results from controlling air emissions from the furnace used to separate mercury from gross impurities. Particulates and fumes not condensed with the mercury product are scrubbed prior to venting to the atmosphere. The scrubber liquor should contain mercury and other toxic metals, and suspended solids.

Primary Molybdenum and Rhenium

There are 13 plants in the United States which engage in primary molybdenum or rhenium production. Three plants are located in the western United States near copper and molybdenite mining operations. The remaining 10 plants are located east of the Mississippi River with five of them in the northeastern and east central United States. Four of the plants are direct dischargers (including two of the the three metallurgical acid plants discussed below) and the remaining nine plants discharge no process wastewater. There are no indirect dischargers in the primary molybdenum and rhenium subcategory. The average plant age is between 25 and 35 years with a fairly even distribution of ages ranging from eight to 67 years.

Molybdenum is produced primarily as technical grade molybdic oxide which is consumed principally by the steel industry. Approximately 35,000 metric tons of molybdic oxide were produced domestically in 1982 by seven plants with an average plant production rate of 5,000 metric tons per year. Approximately 2,000 metric tons of pure molybdenum metal were produced in the United States in 1982 at six plants with an average plant production of 300 metric tons per year. Less than four metric tons per year of rhenium are produced in the United States. The production of molybdenum products can be divided into four general processes—roasting of molybdenum sulfide concentrates, production of pure molybdic oxide by sublimation, production of ammonium molybdate, and reduction of pure molybdic oxide or ammonium molybdate to produce molybdenum metal powder.

Rhenium is recovered from molybdenum roaster flue gases as crude ammonium perrhenate which can subsequently be purified and reduced to rhenium metal.

The primary source of molybdenum is a molybdenum sulfide (MoS_2) ore called molybdenite. Most domestic molybdenite is mined and concentrated at two large mines in Colorado and a smaller amount comes from a mine in New Mexico. Molybdenite is also recovered as a byproduct from concentrating porphyry copper ores. Rhenium is produced only from Molybdenite which is associated with copper mining operations.

At proposal the production normalizing parameter (PNP) for molybdic oxide leachate was the amount of ammonium molybdate produced. Since proposal we have changed the PNP to the amount of molybdenum contained in the molybdic oxide leached. Also, new flow and production data were obtained from on additional plant with this operation. The promulgated BPT, BAT, NSPS and PSNS flow rate for molybdic oxide leachate is 11,584 l/kkg of molybdenum contained in the molybdic oxide leached.

The promulgated rate is applicable only to those plants which leach molybdic oxide in order to increase its purity. This practice is often associated with the production of ammonium molybdate compounds.

The sources of process wastewater receiving an allowance in the primary molybdenum and rhenium subcategory are listed below, along with the pollutants typically found in each:

(1) Molybdenum sulfide leachate and rinse water is generated when molybdenite concentrates are leached with nitric acid and rinsed with water prior to roasting. This stream is characterized by low pH as well as the presence of toxic metals and suspended solids.

(2) Roaster wet air pollution control wastewater results from the use of alkaline wet scrubbing systems to control sulfur dioxide emissions from molybdenite roasting operations. This stream is characterized by high alkalinity and the presence of toxic metals and suspended solids.

(3) Hydrogen reduction furnace scrubber wastewater results from scrubbing hydrogen gas with water to cool and quench the gas prior to recycling the hydrogen to the reduction furnace. This wastewater stream is characterized by the presence of toxic metals and suspended solids.

(4) Molybdic oxide leachate wastewater results from the leaching of technical grade molybdic oxide with nityric acid, water or ammonium hydroxide prior to dissolving, purification and crystallization of ammonium molybdate. This leachate and rinse wastewater is characterized by the presence of toxic metals and ammonia.

(5) Rhenium scrubber solution results from scrubbing rhenium heptoxide from molybdenite roaster off-gases with water and recovering the rhenium from aqueous solution by solvent extraction or ion exchange. This wastewater stream is characterized by the presence of toxic metals.

Metallurgical Acid Plants

Metallurgical acid plants produce sulfuric acid from sulfur dioxide air emissions at primary molybdenum facilities. There are 3 metallurgical sulfuric acid plants associated with primary molybdenum plants in the United States. Of these two are direct dischargers, and one achieves zero discharge. One of the direct discharging facilities is in Iowa and the other two facilities are located in Pennsylvania.

There are insufficient data to ascertain the age of acid plants independently of the molybdenum plants associated with them. The average production capacity for metallurgical acid plants associated with primary molybdenum operations is 50,000 to 100,000 tons per year of 100 percent sulfuric acid.

Metallurgical acid plants produce sulfuric acid from the sulfur dioxide emissions of pyrometallurigical operations. By producing acid, the acid plants not only clean the smelter emissions of many tons per day of sulfur oxides, but they also produce a marketable sulfuric acid product.

As explained earlier in the preamble, the three plants covered in this subcategory will be included and regulated under the existing metallurgical acid plants subcategory.

Outlined briefly here, the sources of process wastewater in metallurgical acid plant subcategory are as follows:

—Sintering wet air pollution control,
—Roasting wet air pollution control,
—Conversion wet air pollution control,
—Acid plant wet air pollution control,
—Mist precipitator,
—Box cooler, and
—Mist eliminator.

These wastewater sources are usually combined into a single wastewater stream—acid plant blowdown—which is treated and then recycled or discharged. The acid plant blowdown stream contains the toxic metals arsenic, cadmium, copper, lead, and zinc, and total suspended solids. In addition to the existing pollutant limitations established under the metallurgical acid plant subcategory, the three molybdenum acid plants will also be subject to limitations for fluoride and molybdenum as well.

Secondary Molybdenum and Vanadium

The one secondary molybdenum and vanadium facility in the United States is a direct discharger. It is located in Southern Texas, and was built in 1973. This industry involves the recovery of molybdenum and vanadium from secondary sources using hydrometallurgical processes.

The sources of process wastewater receiving an allowance in the secondary molybdenum and vanadium subcategory are listed below, along with the pollutants typically found in each:

(1) Leach tailings wastewater results from the water leaching process used to remove inerts and other impurities from the raw material, and is characterized by toxic metals and suspended solids.

(2) Molybdenum filtrate solvent extraction raffinate (formerly molybdenum filtrate at proposal) wastewater is generated by the reovery of molybdenum with solvent extraction of the filtrate from the precipitation of molybdenum-rich liquid produced by the vanadium recovery process. This wastewater is characterized by toxic metals, ammonia, and suspended solids.

The BPT, BAT, NSPS, and PSNS wastewater discharge rate promulgated for molybdenum filtrate solvent extraction raffinate is 60,548 l/kkg (14,544 gal/ton) of molybdenum and vanadium produced. This rate is different than the proposed BPT discharge rate for molybdenum filtrate of 77,600 l/kkg of molybdenum produced. This rate is allocated only to those plants recovering molybdenum and vanadium from spent catalysts by a dissolution and precipitation process. The rate is based on data gathered during a post-proposal sampling visit to the one facility in the secondary molybdenum and vanadium subcategory.

(3) Vanadium decomposition wet air pollution control wastewater results from air emissions control on the furnace used to produce vanadium oxide from vanadium solids. This wastewater contains ammonia, toxic metals, and suspended solids.

(4) Molybdenum drying wet air pollution control wastewater results from air emissions control on the furnace used to dry molybdic acid and to produce molybdenum trioxide from the molybdic acid. This wastewater contains molybdenum, toxic metals, and suspended solids.

Primary Nickel and Cobalt

The one primary nickel and cobalt plant in the United States is a direct discharger. It is located in southern Louisiana and was built in 1959. The processes used at a primary nickel and cobalt production facility depend largely on the raw material used and the final product desired.

The sources of process wastewater receiving an allowance in the primary nickel and cobalt subcategory are listed below, along with the pollutants typically found in each:

(1) Raw material dust control wastewater results from slurrying the baghouse dust generated by crushing and grinding ore concentrate in the mill. This wastewater is characterized by toxic metals (mainly copper and nickel), and suspended solids.

(2) Nickel wash water wastewater is generated by washing the nickel powder product produced by hydrogen reduction. This wastewater contains toxic metals and suspended solids.

(3) Nickel reduction decant wastewater is generated by reducing the nickel-rich solution to metal powder in an autoclave. This waste stream is characterized by a neutral pH, several toxic metals, and a high ammonia (as ammonium sulfate) content.

(4) Cobalt reduction decant wastewater is generated by reducing the cobalt-rich solution to metal powder in an autoclave. This waste stream has similar characteristics to the nickel reduction decant waste stream.

Secondary Nickel

Of the two secondary nickel plants in the United States, one is an indirect discharger and one is a zero discharger. Both plants are located near the industrial centers of Western Pennsylvania. One plant was built in 1923, and the other plant was built in 1976.

The processes used at a secondary nickel production facility depend largely upon the raw material used and the final product desired. Secondary nickel production processes can be discussed in the context of three sources of raw materials: nickel melt furnace slag, nickel carbonate produced from acidic waste streams and sludges generated during forming operations, and solid scrap. Nickel alloy scrap generated at steel mills may also be recycled within the mill, however, no refining of the nickel scrap takes place prior to recycle. The objective of slag reclamation is to recover the nickel values from the dross or slag produced in the nickel melt furnaces of a nickel forming plant. When nickel ingots are melted in the presence of fluxing agents, oxidized metals and impurities rise to the surface of the liquid metal and are removed from the furnace. This slag is approximately 10 percent metallics.

The NSPS, PSES, and PSNS wastewater discharge allowance proposed for slag reclaim tailings was 85,600 l/kkg (20,513 gal/ton) of slag reclaim nickel produced. This allowance was based on the discharge rate at the only plant reporting this stream. Since proposal, industry comments, which included flow and production information, enabled EPA to recalculate the production normalized flow. In addition, industry comment prompted EPA to reconsider the production normalizing parameter for this stream. EPA decided that the generation of slag reclaim tailings wastewater is related more closely to raw material input to the reclaim process than to the quantity of nickel produced from the process.

The NSPS, PSES, and PSNS wastewater discharge allowance promulgated for slag reclaim tailings is 12,848 l/kkg (3,079 gal/ton) of slag input to the reclaim process. This rate is allocated only for those plants that reclaim nickel from slag generated in melt furnaces with a wet granulation process.

The sources of process wastewater receiving an allowance in the secondary nickel subcategory are listed below, along with pollutants typically found in each.

(1) Slag reclaim tailings wastewater results from the wet operation used to reclaim nickel from melt furnace slags, and contains toxic metals and suspended solids.

(2) Acid reclaim leaching filtrate wastewater results from the water leaching process where nickel oxide, produced by roasting nickel carbonate, is purified by leaching away impurities. Toxic metals and suspended solids are found in this waste stream.

(3) Acid reclaim leaching belt filter backwash wastewater is produced by backwashing the belt filter used to recover purified nickel oxide, and contains toxic metals and suspended solids.

Primary Precious Metals and Mercury

Seven of the eight primary precious metals and mercury plants in the United States are zero dischargers. One primary precious metals plant is a direct discharger. Six of the plants achieve zero discharge via permanent lagooning and reuse of process wastewater, and one plant does not generate process wastewater. All eight plants are located west of the Mississippi River, with four plants in Nevada, one in South Dakota, one in Montana, one in Idaho, and one in Colorado. Seven primary precious metals and mercury plants began operations within the last 20 years, and one plant began operations more than 75 years ago. EPA data show that plant production of gold ranges from less than 10,000 troy ounces per year to 200,000 troy ounces per year, with average production approximately 70,000 troy ounces per year; plant production of silver ranges from less than 10,000 troy ounces per year to more than 500,000 troy ounces per year, with average production approximately 220,000 troy ounces per year. The production of mercury is not presented to protect confidential data supplied to the Agency.

The processes used at a primary precious metals and mercury production facility depend largely on the raw material used and the final product desired.

The sources of process wastewater receiving an allowance in the primary precious metals and mercury subcategory are listed below, along with the pollutants typically found in each.

(1) Smelter wet air pollution control wastewater results from control of air emissions from the precious metals dore' smelter using a wet scrubber. This waste stream is characterized by toxic metals and suspended solids.

(2) Silver chloride reduction spent solution wastewater results from the reduction of silver chloride to silver metal by dissolution and displacement with iron. This wastewater contains toxic metals, chloride, suspended solids, oil and grease, and a low pH.

(3) Electrolytic cells wet air pollution control wastewater results from control of air emissions from the electrolytic cells used to further purify gold, which has already been separated from silver, using a wet scrubberr. This wastewater has similar characteristics to the smelter scrubber wastewater.

(4) Electrolyte preparation wet air pollution control results from air emissions control on the reaction vessel used to produce silver nitrate electrolyte from pure silver and nitric acid, using a wet scrubber. This wastewater should have characteristics similar to smelter wet air pollution control wastewater.

(5) Calciner wet air pollution control wastewater results from control of air emissions from the calcining furnace where mercury-containing raw material is roasted. Fumes and particulates passing through the mercury condenser are controlled with a wet scrubber, or series of scrubbers. This wastewater contains high concentrations of mercury, plus some toxic metals and suspended solids.

(6) Calciner quench water wastewater is generated by the water quench used to cool the calcined ore from the mercury roasting furnace. This wastewater contains toxic metals and suspended solids.

(7) Calciner stack gas cooling water wastewater results from the contact cooling water used to cool the gas emissions from the mercury roasting furnace. This wastewater contains mercury and suspended solids.

(8) Mercury calcining condensate wastewater results from the blowdown of water from the condenser where vaporized mercury is collected. This wastewater is characterized by mercury and suspended solids.

(9) Mercury cleaning bath wastewater is generated by the water cleaning bath through which condensed mercury is passed prior to being sold as a product. This wastewater contains mercury, some other toxic metals, and suspended solids.

Two building blocks, gold slimes acid wash and water rinse and silver crystals wash water, have been deleted based on information obtained as a result of a post-proposal request for data under authority of Section 308 of the Clean Water Act. The one facility which was believed to discharge these streams reported that these waters are totally recycled to other plant processes.

Secondary Precious Metals

There are 48 plants in the United States that recover gold, platinum, palladium, iridium, rhodium, osmium, or ruthenium from recycled materials. The plants are concentrated in the Northeast and California, with plants also located in Arizona, Florida, Illinois, Ohio, Virginia, Minnesota, and Washington. EPA data show that a small minority (three) of secondary precious metals plants are direct dischargers. Of the remainder, 29 are indirect dischargers, and 16 are zero dischargers. Most of the plants began operating within the last 15 years.

One-third of the 48 secondary precious metals plants that reported data produce less than 10,000 troy ounces of total precious metals per year; all three of the direct dischargers produce in excess of 50,000 troy ounces per year, as well as 10 of the indirect dischargers.

The processes used at a secondary precious metals production facility depend largely upon the raw materials used and the plant's final products. Secondary precious metals production processes can be divided into two stages: raw material preparation and refining steps.

Depending on the raw material being processed, a plant may use one or more raw material preparation steps to prepare the raw material for the refinery. Plants which process dental scrap, optical scrap, electrical scrap, or spent catalysts may use a pyrometallurgical process.

Some plants do not use any of the raw material preparation steps described above on their raw materials, and proceed directly with the refining steps. Other plants may only melt and granulate their raw material prior to refining. Granulation is a common practice with jewelry scrap.

Refining steps are taken to produce high-purity precious metals (generally 99.9–99.99 percent) from lower purity raw materials, which may have undergone raw material preparation steps via a hydrometallurgical refining process.

Based on comments received following the proposal, the Agency determined that a discharge is necessary for raw material granulation water which had a zero allowance at proposal. The BPT wastewater discharge rate promulgated for raw material granulation is 6.34 liters per troy ounce of precious metals in the granulated raw material. This rate is based on dcp information.

The BAT, NSPS, PSES, and PSNS wastewater discharge rate promulgated for raw material granulation is 0.64 liters per troy ounce of precious metals in the granulated raw material. This rate is based on 90 percent recycle of the promulgated BPT rate, 6.34 liters per troy ounce.

We also changed the production normalized flow for Spent Cyanide Stripping Solutions. The BPT wastewater discharge rate promulgated for spent cyanide stripping solutions is 3.7 liters per troy ounce of gold recovered by cyanide stripping. This rate applies to plants which recover gold by stripping with a cyanide-based solution, and recovering the gold from this solution. This rate is based on the average of the lower five of six water use rates reported for this stream. EPA proposed 1.1 liters per troy ounce for this waste stream, but stated that it was considering 3.7 liters per troy ounce and would select between the two based on a variety of factors, including public comment. EPA decided to revise the rate from 1.1 to 3.7 liters per troy ounce for promulgation based on comments received following proposal.

The sources of process wastewater receiving an allowance in the secondary precious metals subcategory are listed below, along with pollutants typically found in each.

(1) Furnace wet air pollution control wastewater results from the scrubbing of incinerator and smelting furnace off-gases. This wastewater contains toxic organics, toxic metals, cyanide, and suspended solids.

The NSPS and PSNS wastewater discharge rate proposed for furnace wet air pollution control was 0 liters per troy ounce of precious metals, including silver, incinerated or smelted, based on dry scrubbing. The Agency has evaluated industry comments concerning the need for wet scrubbing on furnace operations and has decided to promulgate an NSPS and PSNS wastewater discharge allowance for this subdivision equal to the proposed and promulgated BAT wastewater discharge rate of 4.5 l/kkg of precious metals, including silver, incinerated or smelted.

(2) Raw material granulation wastewater is produced by granulating melted raw material with water in a manner similar to shot casting. The wastewater is characterized by toxic metals and suspended solids.

(3) Spent plating solutions wastewater is a result of recovering gold, palladium or rhodium from spent or contaminated electroplater's solutions, and is characterized by toxic metals, free and complexed cyanide, and suspended solids.

(4) Spent cyanide stripping solution wastewater is produced by stripping gold away from electronic scrap and then recovering the gold from solution. This wastewater consists of free and complexed cyanide, toxic metals, and suspended solids.

(5) Refinery wet air pollution control wastewater is a result of air emissions from basic and acid dissolution and precipitation reactions in the refinery. Pollutants found in this wastewater include toxic organics and metals, cyanide, ammonia, and suspended solids.

(6) Gold solvent extraction raffinate and wash water wastewater is produced by dissolving raw material in acid, and then recovering it by extraction into an organic solvent. After recovering pure gold, the product is washed with water. This wastewater is characterized by toxic organics and metals, and suspended solids.

(7) Gold spent electrolyte wastewater results from the electrolytic recovery of gold from raw material cast as an anode. This wastewater consists of toxic metals and suspended solids.

(8) Gold precipitation and filtration wastewater results from the dissolution of raw material in aqua regia, filtering away silver chloride, precipitating gold, and recovering gold by filtration. The gold product is washed with water, which is included in this effluent. This watewater contains toxic metals, ammonia, and suspended solids.

(9) Platinum precipitation and filtration wastewater results from dissolution of platinum-bearing raw material, precipitation of platinum, and a water wash of the product. This wastewater contains toxic metals, ammonia, and suspended solids.

(10) Palladium precipitation and filtration wastewater results from dissolution of palladium bearing raw material, precipitation of pàlladium, and a water wash of the product. This wastewater contains toxic metals, ammonia, and suspended solids.

(11) Other platinum group metals precipitation and filtration wastewater results from dissolution of platinum group metals (PGM) bearing raw material, precipitation of the PGM, and a water wash of the product. This wastewater contains toxic metals, ammonia, and suspended solids.

(12) Spent solutions from potassium gold cyanide (PGC) salt manufacturing wastewater is a result of adding excess potassium cyanide solution to pure gold in order to produce PGC salt. The excess, or spent solution contains toxic metals, free and complexed cyanide, and suspended solids.

(13) Equipment and floor wash wastewater results from the need for plants to recover product which would normally be lost in spills and leaks, and is characterized by toxic metals, ammonia, and suspended solids.

Primary Rare Earth Metals

The primary rare earth metals industry consists of four plants; one is located in southwest United States and the remaining three are in the northeast United States. Of these four facilities, two were built in the past 20 years, while two were built nearly 70 years ago. The average production of rare earth metals from these plants is 270 tons per year. One of the plants is a direct discharger, one is an indirect discharger, and two are zero dischargers.

Rare earth metal production can be divided into two types of metals produced: pure rare earth metals, and mischmetal, an alloy of various rare earth metals and iron. There are two types of rare earth metals production processing steps which an individual plant may utilize. Pure rare earth metals are produced through reduction processes. Calcium reduction is used for rare earth fluoride raw materials and mischmetal reduction is used for rare earth oxide raw materials.

The sources of process wastewater receiving an allowance in the primary rare earth metals industry are listed below, along with the pollutants typically found in each:

(1) Dryer vent water quench and scrubber wastewater results from air pollution control systems on the wet rare earth chloride drying furnaces. This wastewater contains suspended solids and toxic metals.

(2) Dryer vent caustic wet air pollution control wastewater is generated by wet scrubbing to remove acid vapors from the vent gases. This stream is characterized by a high pH, and treatable concentrations of toxic metals and suspended solids.

At proposal subdivisions one and two were combined into a single subdivision entitled dehydration furnace quench and wet air pollution control. The proposed BPT wastewater discharge rate for the combined subdivision was 14,800 l/kkg of mischmetal produced from wet rare earth chlorides. This discharge rate was based on the average water use at the two facilities reporting this waste stream. Of the two plants, one uses 11,600 l/kkg and the other 17,900 l/kkg.

Since proposal, new flow and production information from one plant prompted a study of the combined subdivision. EPA then decided to create two separate subdivisions to better address the differences between the processes at the two discharging plants in this subcategory.

The promulgated BPT wastewater discharge rate for dryer vent water quench and scrubber is 10,563 l/kkg (2,531 gal/ton) of mischmetal produced from wet rare earth chlorides. This rate is allocated only for those plants which use a furnace to dehydrate rare earth chloride raw material prior to electrolytic refining, and treat the off-gases with a continuous water quench or with a water scrubber. Both rare earth metals plants producing mischmetal in the United States incorporate this operation. The promulgated BPT wastewater discharge rate is based on the water use at the plant reporting no recycle of wastewater. This plant uses 10,563 l/kkg. Because the second plant presently operates at 97 percent recycle, it is more appropriately used as a basis for the BAT discharge allowance.

The BAT, NSPS, PSES, and PSNS wastewater discharge allowance for dryer vent water quench and scrubber wastewater is 4,173 l/kkg (1,000 gal/ton) of mischmetal produced from wet rare earth chlorides. Both of the rare earth metal plants producing mischmetal incorporate this operation. One plant presently recycles the scrubber liquor achieving 97 percent recycle. The other plant does not presently practice recycle. The BAT wastewater discharge rate is based on the discharge rate of the plant practicing recycle. Information submitted after proposal indicates that two building blocks are necessary because not all plants incorporate both building blocks in their process operations.

A separate discharge rate for dryer vent caustic wet air pollution control is being promulgated for BPT. The BPT wastewater discharge rate for dryer vent caustic wet air pollution control wastewater is 734 l/kkg (176 gal/ton) of mischmetal produced from wet rare earth chlorides. This rate is allocated only for those plants which use a caustic scrubber, in addition to a water quench or water scrubber, to treat vent gases from a wet rare earth chlorides dehydration furnace. Only one of the plants in this subcategory reported having this operation. The promulgated BPT wastewater discharge rate is based on the discharge flow at this one plant.

(3) Electrolytic cell water quench and scrubber wastewater results from cooling gas emissions from electrolytic reduction of rare earth chlorides. This wastewater contains some toxic metals, hexachlorobenzene, and has a low pH.

The BPT wastewater discharge rate proposed for electrolytic cell water quench and scrubber wastewater was 16,400 l/kkg (3,930 gal/ton) of total mischmetal produced. This rate was based on the average water use of two plants with this waste stream. One reported a water use of 20,100 l/kkg and the second 12,700. At proposal, EPA understood that neither plant recycled this waste stream based on dcp information. Post-proposal comments and information from one plant indicated otherwise; therefore, a new BPT rate was chosen for promulgation.

The promulgated BPT wastewater discharge rate for electrolytic cell water quench and scrubber is 12,682 l/kkg (3,039 gal/ton) of total mischmetal produced. This rate is allocated only for those plants which electrolytically reduce rare earth chlorides to mischmetal and treat the off-gases with a continuous water quench or a water scrubbber system before any further treatment of the exhaust gases. The promulgated BPT wastewater discharge rate is based on the water use at the plant reporting no recycle of scrubber or quench water. This plant uses 12,682 l/kkg. Because the second plant presently operates at 96 percent recycle it is more appropriately used as a basis for the BAT discharge allowance.

The BAT, NSPS, PSES, and PSNS wastewater discharge allowance for electrolytic cell water quench and wet air pollution control is 9,390 l/kkg (2,250 gal/ton) of total mischmetal produced. Both of the rare earth metal plants producing mischmetal incorporate this operation. One plant presently practices 96 percent recycle while the other plant has no recycle. The BAT wastewater discharge rate is based on the discharge rate of the plant practicing recycle.

(4) Electrolytic cell caustic wet air pollution control wastewater is presently used for by-product recovery involving sodium hypochlorite produced from sodium hydroxide and chlorine gas from the electrolytic reduction cell. Because of the recovery operation, no wastewater is discharged.

(5) Sodium hypochlorite filter backwash results from filtering of the sodium hypochlorite solution generated in the electrolytic cell caustic scrubber to produce a marketable product. Backwashing is necessary to ensure efficient operation of the filter. This wastestream may be expected to contain high chlorides and other dissolved solids, suspended solids and has a high pH. This wastestream has been added in response to comments on the proposed regulation.

A discharge allowance for sodium hypochlorite filter backwash was not proposed because dcp information used for proposal did not quantify any wastewater discharge from this operation. Comments received from industry after proposal requested an allowance for the filter backwash and supplied information so that water use and discharge rates could be calculated.

The promulgated BPT, BAT, NSPS, PSES, and PSNS wastewater discharge rate for sodium hypochlorite filter backwash is 362 l/kkg (87 gal/ton) of total mischmetal produced. This rate is allocated only for those plants which operate a filter for filtering sodium hypochlorite which requires periodic backwashing. The promulgated discharge rate is based on the water use at the only plant reporting this waste stream.

Secondary Tantalum

There are three plants in the United States that recover tantalum from secondary sources. The plants are located in the northeastern part of the United States. EPA data show that all of the plants are direct dischargers. The average age of the plants is 60 years; the oldest plant was built in 1900 while the newest plant was constructed just prior to World War II. Secondary tantalum is produced in the form of tantalum metal powder. Average tantalum powder production for the three plants is 12 tons per year. The processes used at a secondary tantalum production facility depend upon the raw materials used. Secondary tantalum production can be discussed in the context of three raw materials: scrap tantalum alloy metal, electrical components such as capacitors, and tantalum-bearing sludge.

The sources of process wastewater receiving an allowance in the secondary tantalum subcategory are listed below, along with the pollutants typically found in each:

(1) Tantalum alloy leach and rinse wastewater results from leaching tantalum alloy scrap metal, contains dissolved toxic metals such as copper and nickel, suspended solids, and has a low pH.

(2) Capacitor leach and rinse wastewater results from leaching of scrap electrical components which are predominantly capacitors. This wastewater has a low pH and contains suspended solids and toxic metals.

(3) Tantalum sludge leach and rinse wastewater results from leaching and rinsing tantalum-bearing sludge during tantalum upgrading operations. It

contains toxic metals such as copper and lead, suspended solids, and has a low pH.

(4) Tantalum powder acid wash and rinse wastewater results from final purification of tantalum powder to remove surface oxides. This wastewater contains toxic metals, suspended solids, and has a low pH.

(5) Leaching wet air pollution control wastewater is the scrubber liquor resulting from acid leaching of raw materials for tantalum recovery. This wastewater contains total suspended solids and toxic metals.

Secondary Tin

At proposal, this subcategory was named primary and secondary tin. We have renamed this subcategory as secondary tin only because there are no facilities processing tin ores in the United States. There is one facility capable of processing ore but it is currently processing secondary materials.

There are 12 plants in the United States which produce or recover tin from secondary sources such as detinners mud, tin plated steel scrap and tin plating solutions and sludges using either pyrometallurgically or hydrometallurgical process. Five of the 12 plants which produce secondary tin are located in the west or southwestern United States. Five of the remaining seven plants are located in the east central United States. One plant is located in Indiana and one plant is located in Florida. The average plant age is between 16 and 25 years. All of the plants have been built since 1940. The one plant which produces secondary tin pyrometallurgically has a production level between 1,000 and 5,000 metric tons per year. This facility is a direct discharger. Approximately 1,700 metric tons of secondary tin were produced in 1982 at 12 plants with an average plant production of approximately 150 metric tons per year. Eight of the 12 secondary tin plants achieve zero discharge; three are direct dischargers and one discharges to a POTW.

Primary tin is produced by smelting tin concentrates with limestone and coke. The crude tin is then electrolytically refined and cast. Secondary tin may also be produced by smelting tin residues, particularly detinners mud from alkaline detinning operations. Most secondary tin, however, is produced by dissolving tin from tin plated steel scrap, and recovering the tin by electrowinning. Tin may also be recovered from solution by precipitation of tin as tin hydroxide. A smaller amount of secondary tin is recovered from tin plating sludges which are generated by tin plated steel production operations.

The sources of process wastewater receiving an allowance in the primary and secondary tin subcategory are listed below along with the pollutants typically found in each.

(1) Tin smelter sulfur dioxide (SO_2) scrubber (formerly tin smelter wet air pollution control at proposal) wastewater results from the use of wet scrubbing systems to control sulfur dioxide emissions from tin smelting operations. This wastewater is characterized by the presence of toxic metals and suspended solids.

The proposed wastewater discharge rate for this building block was 21,600 l/kkg of tin metal produced. The BPT, BAT, NSPS, and PSNS wastewater discharge promulgated for tin smelter sulfur dioxide (SO_2) scrubber water is 9,198 l/kkg (2,204 gal/ton) of crude tapped tin produced, based on greater than 90 percent recycle. This rate is allocated only to those plants which use wet air pollution control to control SO_2 emissions from tin smelting operations. One facility reported tin smelting operations and the use of wet scrubbing. This facility has a scrubber liquor recycle rate of greater than 90 percent. The revised BPT, BAT, NSPS, and PSNS flow allowance is based on data obtained as a result of field sampling conducted after proposal.

(2) Dealuminizing rinse wastewater results from dissolving aluminum from minicipal solid waste derived scrap prior to alkaline detinning. This stream is characterized by an alkaline pH and the presence of cyanide, toxic metals, aluminum, and suspended solids.

(3) Tin hydroxide wash wastewater is generated when tin hydroxide is used as a raw material in the elecrowinning operations and is washed with water to remove impurities prior to dissolving and electrowinning. This waste stream contains toxic metals and suspended solids.

(4) Tin mud acid neutralization filtrate is generated when tin mud is upgraded by acid addition and dewatering prior to sale to tin smelters. This wastewater contains cyanide and toxic metals.

(5) Spent electrowinning solution from new scrap results from discharging water from the electrowinning circuit to control the buildup of impurities when new tin plated steel scrap is processed. This stream has a very alkaline pH and contains cynide, toxic metals and suspended solids.

(6) Spent electrowinning solution from municipal solid waste is required to account for the larger volume of spent electrowinning solution which must be discharged when municipal solid waste is used as a raw material in alkaline detinning and electrowinning. This extra discharge is necessitated by impurities which are introduced into the electrowinning solution by the municipal solid waste. This wastewater is characterized by an alkaline pH and the presence of cyanide, toxic metals and suspended solids.

(7) Tin hydroxide supernatant from scrap is generated when tin hydroxide is precipitated from alkaline detinning solution and separated from the aqueous phase by gravity separation. This wastewater contains toxic metals, cyanide, and suspended solids.

(8) Tin hydroxide supernatant from plating solutions and sludges is generated when the redissolved tin hydroxide is precipitated as a hydroxide from solution and separated from the aqueous phase by gravity separation. This wastewater is characterized by the presence of toxic metals, cyanide, suspended solids, and high concentrations of fluoride.

We proposed two separate subdivisions, tin hydroxide supernatant from spent plating solutions and tin hydroxide supernatant from sludge. These have been combined into one building block. This change will simplify the regulation, but will not cause the limitations with which any plant must comply to change. At proposal, a plant generating both wastewater from plating solutions and from sludges would have calculated separate mg/kg limits for each operation and summed them for a plant limitation. The promulgated BPT, BAT, NSPS, PSES, and PSNS wastewater discharge rate for tin hydroxide supernatant from plating solutions and sludges is 115,000 l/kkg (17,600 gal/ton) of tin metal recovered from plating solutions and sludges. This rate is allocated only to those facilities which recover tin from plating solutions and sludges by precipitation of tin hydroxide. One facility reports this practice.

(9) Tin hydroxide filtrate results from dewatering tin hydroxide slurry in a filter press. The resultant filtrate stream contains toxic metals, cyanide, fluoride, and suspended solids.

Primary and Secondary Titanium

Of the eight primary and secondary titanium plants in the United States, four are direct dischargers, two are indirect dischargers, and two are zero dischargers. The plants are located mostly in the eastern and northwestern states. There plants were built around 1940, three were built between 1956 and 1958, and two have been built since

1975. EPA data show that five of the eight plants produce less than 500 kkg per year while, of the remining three plants, two produce more than 5,000 kkg per year.

The processes used at a primary and secondary titanium production facility depend largely on the raw material used and the final product desired.

One building block, cathode gas wet air pollution control, has been deleted based on information obtained as a result of a post-proposal request for data under authority of section 308 of the Clean Water Act. Two facilities reported this waste stream at proposal. One facility which reported this stream (plant 1044) no longer produces titanium. The other facility which reported this stream (plant 1085) has changed their magnesium recovery operations and no longer generates this wastewater. Because there are no plants in the primary and secondary titanium subcategory which practice cathode gas scrubbing, this subdivision has been deleted.

The sources of process wastewater receiving an allowance in the primary and secondary titanium subcategory are listed below, along with the pollutants tyipically found in each:

(1) Chlorination off-gas wet air pollution control wastewater resutls from wet scrubbers on the fluidized bed reactors used to convert rutile ore to the titanium tetrachloride. This waste stream may contain chlorine, suspended solids, and toxic metals.

(2) Chlorination area vent wet air pollution control wastewater results from wet scrubbers used to control fumes from the ore chlorination operation. This waste stream contains chlorine, suspended solids, and toxic metals.

(3) Titanium tetrachloride handling wet air pollution control wastewater results from wet scrubbers used to control fumes from the handling and storage of titanium tetrachloride. The characteristics of this stream are similar to those of the reduction area scrubber water, which contains suspended solids and toxic metals.

(4) Reduction area wet air pollution control wastewater resulting from wet scrubbers used to control fumes generated from the reduction furnace when titanium tetrachloride is reduced to the metal sponge by magnesium. No wet air pollution control is reported to be associated with reduction by sodium or calcium hydride (CaH_2). This wastewater is characterized by the presence of magnesium chloride, and toxic metals.

(5) Melt cell wet air pollution control wastewater results from wet scrubbers used to control fumes from molten magnesium chloride which is stored in a melt cell prior to electrolytic recovery. This stream is characterized by low pH and low concentrations of toxic metals.

(6) Chlorine liquefaction wet air pollution control wastewater results from wet scrubbers used to control vapors which escape during the liquefaction of the chlorine gas generated by the electrolytic recovery of magnesium. This stream is characterized by a low pH and the presence of toxic metals.

(7) Sodium reduction container reconditioning wash water is generated when water is used to rinse the containers used for the reduction of titantium tetrachloride by sodium. This stream contains chlorides, suspended solids, and toxic metals.

(8) Chip crushing wet air pollution control wastewater results from wet scrubbers used to control dust when titanium sponge chips are crushed prior to purification. This stream contains titanium and suspended solids.

(9) Acid leachate and rinse water is generated when titanium sponge is purified by leaching. Purification by vacuum distillation does not generate a wastewater. This waste stream is characterized by the presence of suspended solids and toxic metals.

(10) Sponge crushing and screening wet air pollution control wastewater results from wet scrubbers used to control dust from the crushing, screening, and storage of leached titanium. This waste stream contains suspended solids and toxic metals.

(11) Acid pickle and wash water is generated when large surface area titanium scrap is pickled and rinsed before alloying and casting. This low pH waste stream contains fluoride and toxic metals.

(12) Scrap milling wet air pollution control wastewater results from wet scrubbers used to control dust from the milling of titanium scrap and turnings. This waste stream contains suspended solids and toxic metals.

(13) Scrap detergent wash water is generated when scrap titanium is washed to remove oil and dirt before alloying and casting. This waste stream contains suspended solids, oil and grease, and toxic metals.

(14) Casting crucible wash water is generated when water is used to clean the crucibles used in casting operations. This stream is similar to casting contact cooling water and should contain oil and grease and toxic metals.

(15) Casting contact cooling water is generated during the casting operations. This stream is characterized by the presence of oil and grease, suspended solids, and toxic metals.

Secondary Tungsten and Cobalt

Of the six secondary tungsten and cobalt plants in the United States, four are direct dischargers, one is an indirect discharger and one is a zero discharger. All six plants are located in the northeastern part of the country, near industrial centers, and all are in areas of net precipitation. One secondary tungsten and cobalt plant was built prior to World War I, two were built during World War II, and two plants were built in the last 20 years. EPA data show that average plant production of tungsten products is about 100 tons per year. Average plant production of cobalt products is also about 100 tons per year.

The processes used at a secondary tungsten and cobalt production facility depend largely on the raw material used and the final product desired. The basic hydrometallurgical processing steps which an individual plant may use to recover tungsten, tungsten carbide, cobalt, and synthetic scheelite ($CaWO_4$) were discussed in the preamble to the proposed regulation.

The sources of process wastewater receiving an allowance in the secondary tungsten and cobalt subcategory are listed below, along with the pollutants typically found in each.

(1) Tungsten detergent wash and rinse wastewater is a result of washing oil and grease off the surface of tungsten scrap prior to leaching, and this stream contains toxic metals, oil and grease, and suspended solids.

(2) Tungsten leaching acid wastewater is generated when tungsten scrap is leached with an acid solution in order to remove impurities from the scrap. This stream is characterized by toxic metals, suspended solids, and a low pH.

(3) Tungsten post-leaching wash and rinse wastewater is a result of washing residual leaching acid and impurities away from the tungsten powder product. This stream consists of toxic metals and suspended solids.

(4) Synthetic scheelite filtrate wastewater is produced by the dissolution process where tungsten oxide produced from scrap is converted to synthetic scheelite. This waste stream is characterized by toxic metals and suspended solids.

(5) Tungsten carbide leaching wet air pollution control wastewater results from the wet scrubbers used to control acid fumes generated during tungsten carbide leaching. This scrubber liquor contains toxic metals, ammonia and suspended solids.

The proposed BPT flow allowance for tungsten carbide leaching wet air pollution control was 1,751 l/kkg of tungsten carbide scrap leached. The proposed BAT, NSPS, and PSNS allowance was 175 l/kkg of tungsten carbide scrap leached based on 90 percent recycle of the BPT rate. Based on comments on the proposed rulemaking, the Agency reexamined the dcp data for the one facility with this operation and found that recycle of scrubber liquor is already practiced at a rate greater than 90 percent. Therefore, the promulgated BAT, PSES, NSPS and PSNS flow rates for tungsten carbide leaching wet air pollution control are equal to the proposed and promulgated BPT rate, 1,751 l/kkg of tungsten carbide scrap leached.

(6) Tungsten carbide wash water is generated when tungsten carbide powder is washed with dilute acid and rinsed with water in order to remove residual leaching acid and impurities. This waste stream is similar to tungsten post-leaching wash and rinse wastewater, and has similar characteristics.

(7) Cobalt sludge leaching wet air pollution control wastewater results from the wet scrubber used to control acid fumes generated during cobalt sludge leaching. This waste stream and tungsten carbide leaching wet air pollution control should have similar characteristics.

The proposed BPT flow allowance for cobalt sludge leaching air pollution control was 35,781 l/kkg of cobalt produced from cobalt sludges. The proposed BAT, NSPS, and PSNS flow allowance was 3,578 l/kkg of cobalt produced from cobalt sludges based on 90 percent recycle of the proposed BPT rate. In response to comments on the proposed rulemaking, the Agency reexamined the dcp data for the one facility with this operation and found that recycle of scrubber liquor is already practiced at a rate greater than 90 percent. Therefore, the promulgated BAT, NSPS, PSES and PSNS flow rates for cobalt sludge leaching wet air pollution control are equal to the proposed and promulgated BPT rate, 35,781 l/kkg of cobalt produced from cobalt sludges.

(8) Crystallization decant wastewater is produced by plants which recover cobalt from tungsten carbide leaching acid by crystallization. This waste stream is characterized by toxic metals and suspended solids.

(9) Acid wash decant wastewater results from the purification steps used on the cobalt crystals, and contains toxic metals and suspended solids.

(10) Cobalt hydroxide filtrate wastewater is generated by the alkaline dissolution and precipitation process used to produce cobalt hydroxide. This waste stream is characterized by toxic metals and suspended solids.

(11) Cobalt hydroxide filter cake wash water is produced by washing the cobalt hydroxide filter cake with water in order to remove any traces of caustic or other impurities. This stream contains toxic metals.

Secondary Uranium

There are three plants in the United States that produce secondary uranium including depleted uranium metal. Of these three, one plant is a zero discharger and two plants are direct dischargers. The plants are all located east of the Mississippi River. Two plants were built in the 1950s when the uranium industry first began large scale production. The third plant was built nearly 15 years ago to supplement the growing need for uranium for commercial projects.

The uranium production process can be divided into three phases. The first phase is processing of uranium ore to generate uranium hexafluoride (UF_6) (not depleted). This primary production of uranium is not covered by this regulation and may be the subject of future regulation. The second phase is processing uranium scrap materials into uranium tetrafluoride (UF_4). The third phase is reduction of uranium tetrafluoride to uranium metal.

Raw materials available to uranium producers include scrap from forming operations, material that does not meet specifications for quality or purity, tailings from machining operations, and residuals present in magnesium fluoride slag from the final uranium tetrafluoride reduction processes.

The sources of process wastewater receiving an allowance in the secondary uranium subcategory are listed below, along with the pollutants typically found in each:

(1) Refinery sump filtrate (formerly, refinery filtrate at proposal) wastewater results from floor wash pump leakage, pump peal water spills from the digestion, solvent extraction, evaporation and denitration areas where uranium scrap is being processed. This wastestream contains toxic metals and suspended solids.

The proposed BPT, BAT, NSPS, and PSNS wastewater discharge rate for refinery sump filtrate was 34,800 l/kkg 8,340 gal/ton) of uranium trioxide produced. This rate was allocated for those plants that acid leach scrap uranium materials to recover uranium. One plant in this subcategory employs this operation and the discharge rate was based on flow information provided by this plant. Post-proposal comments which included new data and information from the plant showed that the proposed flow was not accurate and that the production normalizing parameter was not appropriate. EPA studied the data and decided to promulgate a revised flow allowance and, in addition, change the PNP for this subdivision.

The promulgated BPT, BAT, NSPS, and PSNS wastewater discharge rate for refinery sump filtrate is 73,340 l/kkg (17,580 gal/ton) of uranium processed in the refinery. This rate is allocated only for those plants that employ acid leaching and dissolution operations to recover uranium from secondary sources. The flow from the one plant in this subcategory having this operation was used to determine the promulgated regulatory flow.

(2) Slag leach reslurry (formerly, slag leach slurry at proposal) wastewater is generated by adding water to the filtered solids from acid leaching of recycled magnesium fluoride slag. The waste stream contains suspended solids and has a low pH.

The proposed BPT, BAT, NSPS, and PSNS wastewater discharge rate for slag leach reslurry was 3,800 l/kkg (910 gal/ton) of uranium trioxide produced. This rate was allocated only for those plants which leach magnesium fluoride slag, recycled from the magnesium reduction operation, to recover the residual uranium in the slag. Post-proposal comments from the industry indicated a difficulty with the PNP chosen for this subdivision. If a plant operates leaching on a campaign basis, it must have a way to determine its regulatory allowances without waiting for the next process step to be completed. EPA acknowledged this difficulty and chose a new PNP for promulgation. However, the wastewater flow (l/yr) used to calculate the regulatory flow (l/kkg) was not altered.

The promulgated BPT, BAT, NSPS, and PSNS wastewater discharge rate for slag leach reslurry is 4,566 l/kkg (1,094 gal/ton) of uranium processed in the refinery. This rate is allocated only for those plants which recover uranium by leaching magnesium fluoride slag. One plant in this subcategory has this operation, and the promulgated BPT discharge rate is based on the water use at this plant.

(3) Solvent extraction raffinate filtrate (formerly, solvent extraction raffinate at proposal) wastewater results from purification of an intermediate uranium compound by extraction into an organic

phase. The discharged aqueous solution contains toxic metals, and suspended solids.

The proposed BPT, BAT, NSPS, and PSNS wastewater discharge rate for solvent extraction raffinate filtrate was 5,300 l/kkg (1,270 gal/ton) of uranium trioxide produced. This rate was allocated for those plants which purify the uranium by extraction into an organic solvent, leaving behind all impurities that were leached along with the uranium. One plant in this subcategory employs such a purification process. Post-proposal comments from industry indicated a difficulty with the PNP chosen for this subdivision. If a plant operates solvent extraction on a campaign basis, it must have a method to determine its regulatory allowance without waiting for the next process step to be completed. EPA acknowledged this difficulty and chose a new PNP for promulgation. However, the wastewater flow (l/yr) used to calculate the regulatory flow (l/kkg) was not altered.

The promulgated BPT, BAT, NSPS, and PSNS wastewater discharge rate for solvent extraction raffinate filtrate is 6,369 l/kkg (1,526 gal/ton) of uranium processed in solvent extraction. This rate is allocated only for those plants using solvent extraction procedures to purify uranium compounds dissolved in solution as a result of acid leaching and dissolution. The promulgated BPT discharge rate is based on the water use at the one plant in the subcategory having this operation.

(4) Digestion wet air pollution control produces no wastewater discharge. At proposal we believed that wastewater resulted from wet scrubbing of process emissions. However, after proposal, we received information that there is no discharge generated because scrubber liquors resulting from control of the process emissions from acid leaching are entirely recycled to the digestion operations.

The proposed BPT, BAT, NSPS, and PSNS wastewater discharge rate for digestion wet air pollution control was 30 l/kkg (7.2 gal/ton) of uranium trioxide produced. This rate was allocated only for those plants that incorporate a water scrubber on the acid leaching and dissolution operation. Post-proposal comments from the industry clarified the Agency's understanding of the digestion scrubber's operation. The comments indicated that scrubber blowdown is totally reused in the leaching and dissolution operation because it contains nitric acid and uranium. No discharge occurs from this scrubber, and EPA decided to change the discharge rate for this subdivision at promulgation.

The promulgated BPT, BAT, NSPS, and PSNS wastewater discharge rate for digestion wet air pollution control is zero. The promulgated discharge rate is based upon water use information supplied by the only plant in this subcategory having a digestion operation scrubber. Existing practice at this plant is such that 100 percent of the scrubber liquor is recycled or reused; therefore, it is appropriate that the promulgated regulatory flow should be zero.

(5) Evaporation and denitration wet air pollution control (formerly, evaporation and calcination wet air pollution control at proposal) produces no wastewater discharge. Scrubber liquors resulting from control of emissions in the evaporation and calcination operations were reported to be 100 percent reused in the digestion operation.

(6) Hydrofluorination alkaline scrubber (formerly, hydrogen reduction and hydrofluorination KOH wet air pollution control at proposal) wastewater results from wet scrubbers that control vent gases from the hydrofluorination water scrubber which controls acid fumes from the hydrofluorination operations. The wastewater contains suspended solids, fluorides and has an acidic pH.

(7) Hydrofluorination water scrubber (formerly, hydrofluorination wet air pollution control at proposal) produces no wastewater discharge. Scrubber liquor that absorbs unreacted hydrofluoric acid gases is recycled to concentrate the acid content. The acid scrubber liquor is drawn off and sold for its hydrofluoric acid content.

(8) Magnesium reduction and casting floor wash water results from washing the floors in the reduction and casting area. This wastestream contains toxic metals, suspended solids, fluorides and has as acidic pH.

The promulgated BPT, BAT, NSPS, and PSNS wastewater discharge rate for magnesium reduction and casting floor wash water is 30.1 l/kkg of uranium metal produced. This rate is based on the lower of the two values reported by two facilities in this subcategory and is achievable through the use of a floor washing machine. No wastewater discharge allowance was proposed for this building block because the Agency had insufficient data to quantify the flow associated with this operation. Data obtained during post-proposal sampling visits to two facilities has enabled the Agency to promulgate a discharge allowance for this building block.

(9) Laundry wastewaters are generated from washing of employee uniforms. This wastestream contains suspended solids and toxic metals.

The promulgated BPT wastewater discharge allowance for laundry wastewater is 192 l/kkg of uranium produced by magnesium reduction. The promulgated BAT, NSPS, and PSNS wastewater discharge allowance for laundry wastewater is 96 l/kkg of uranium produced by magnesium reduction based on 50 percent recycle of the promulgated BPT flow rate. No wastewater discharge was proposed for this building block because the Agency had insufficient data to quantify the flow associated with this operation. Data obtained during a post-proposal sampling visit have enabled the Agency to promulgate discharge allowances for this building block.

The last two building blocks were added after proposal to account for additional wastestreams requested by the plants in their comments. Changes to building blocks were made after proposal as a result of additional information collected in sampling two of the plants. A detailed explanation of these changes is provided in the accompanying development document.

Primary Zirconium and Hafnium

Of the three primary zirconium and hafnium plants in the United States, one is a direct discharger, one is an indirect discharger, and one is a zero discharger. The plants are located in the states of Massachusetts, Utah, and Washington. Plant age covers a 42-year span, the oldest plant having been built in 1937.

The processes used at a primary zirconium and hafnium production facility depend largely on the raw material used.

One subdivision, silicon tetrachloride ($SiCl_4$) purification waste acid, has been deleted based on new information which the Agency received since proposal which indicates that this is not a wastewater stream at all but is actually an impure mixture of waste titanium tetrachloride, which should not be given a discharge allowance.

The sources of process wastewater receiving an allowance in the primary zirconium and hafnium subcategory are listed below, along with the pollutants typically found in each:

(1) Sand drying wet air pollution control wastewater results from wet scrubbers used in the zircon sand drying operation. This stream is characterized by the presence of suspended solids and toxic metals.

The BPT, BAT, NSPS, PSES, and PSNS wastewater discharge allowance for sand drying wet air pollution control at proposal was 379 l/kkg (91 gal/ton) of zircon sand dried. Based on comments which the Agency received on the proposed rulemaking, it was decided that the mass of zirconium dioxide and hafnium dioxide produced is a more appropriate production normalizing parameter for this wastewater stream. The Agency also evaluated new flow and production data submitted after proposal with industry comments. The promulgated wastewater discharge rate for this subdivision is 568 l/kkg (136 gal/ton) of zirconium dioxide and hafnium dioxide produced. This rate is based on the rate reported by the only plant which generates this stream. The one facility reporting this stream currently practices recycle of scrubber water prior to discharge.

(2) Sand chlorination off-gas wet air pollution control wastewater results from wet scrubbers used to control off-gases from the chlorinators. This wastewater is characterized by the presence of solids and chlorine.

The BPT wastewater discharge allowance for sand chlorination off-gas wet air pollution control at proposal was 14,712 l/kkg (3,529 gal/ton) of crude zirconium tetrachloride ($ZrCl_4$) produced. The proposed BAT, NSPS, PSES, and PSNS wastewater discharge allowance was 1,471 l/kkg of crude zirconium tetrachloride ($ZrCl_4$) produced. This rate was based on 90 percent recycle of the proposed BPT flow rate. Based on comments which the Agency received on the proposed rulemaking, it was decided that the mass of zirconium dioxide and hafnium dioxide produced is a more appropriate production normalizing parameter for this wastewater stream. The Agency also evaluated new flow and production data submitted after proposal with industry comments. The promulgated BPT, BAT, NSPS, PSES, and PSNS wastewater discharge rate for this subdivision is 43,470 l/kkg (10,418 gal/ton) of zirconium dioxide and hafnium dioxide produced. Of the two plants which generate this stream, only one reported sufficient information, including rate of recycle, to determine water use and discharge rates. The BPT rate is based on the rate reported by this one facility, which currently practices 93 percent recycle.

(3) Sand chlorination area-vent wet air pollution control wastewater results from wet scrubbers used to control fumes in the sand chlorination area. This wastewater is characterized by the presence of solids and chlorine.

The BPT wastewater discharge allowance for sand chlorination area vent wet air pollution control at proposal was 19,616 l/kkg (94,706 gal/ton) of crude zirconium tetrachloride ($ZrCl_4$) produced. The proposed BAT, NSPS, PSES, and PSNS wastewater discharge allowance was 1,962 l/kkg of crude $ZrCl_4$ produced. This rate was based on 90 percent recycle of the proposed BPT flow rate. Based on comments which the Agency received on the proposed rulemaking, it was decided that the mass of zirconium dioxide and hafnium dioxide produced is a more appropriate production normalizing parameter for this wastewater stream. The Agency also evaluated new flow and production data submitted after proposal with industry comments. The promulgated BPT, BAT, NSPS, PSES, and PSNS wastewater discharge rate for this subdivision is 8,524 l/kkg (2,043 gal/ton) of zirconium dioxide and hafnium dioxide produced. Only one plant reported generating this stream. The BPT flow rate is based on the rate reported by this one facility, which currently practices 96 percent recycle.

(4) Silicon tetrachloride purification wet air pollution control wastewater is generated when wet scrubbers are used to control fumes from the purification of the silicon tetrachloride formed during sand chlorination. This stream contains suspended solids and cyanide.

The BPT wastewater discharge allowance for silicon tetrachloride ($SiCl_4$) purification wet air pollution control at proposal was 8,650 l/kkg (2,075 gal/ton) of $SiCl_4$ purified. The proposed BAT, NSPS, PSES, and PSNS wastewater discharge rate was 865 l/kkg of $SiCl_4$ purified. This rate based on 90 percent recycle of the proposed BPT flow rate. Based on comments which the Agency received on the proposed rulemaking, it was decided that the mass of zirconium dioxide and hafnium dioxide produced is a more appropriate production normalizing parameter for this wastewater stream. The Agency also evaluated new flow and production data submitted after proposal with industry comments. The promulgated BPT, BAT, NSPS, PSES, PSNS wastewater discharge rate for this subdivision is 7,498 l/kkg (1,797 gal/ton) of zirconium dioxide and hafnium dioxide produced. Only one plant reported generating this stream. The BPT flow rate is based on the rate reported by this one facility, which currently practices 96 percent recycle of scrubber liquor prior to discharge.

(5) Feed makeup wet air pollution control wastewater results from wet scrubbers used to control fumes generated when crude zirconium-hafnium tetrachloride is dissolved in water and filtered to remove solids. This stream is characterized by the presence of suspended solids and cyanide.

The BPT wastewater discharge allowance for feed makeup wet air pollution control at proposal was 6,334 l/kkg (1,519 gal/ton) of crude $ZrCl_4$ produced. The proposed BAT, NSPS, PSES, and PSNS wastewater discharge rate was 633 l/kkg of crude $ZrCl_4$ produced. This rate was based on 90 percent recycle of the proposed BPT flow rate. Based on comments which the Agency received on the proposed rulemaking, it was decided that the mass of zirconium dioxide and hafnium dioxide produced is a more appropriate production normalizing parameter for this wastewater stream. The Agency also evaluated new flow and production data submitted after proposal with industry comments. The promulgated BPT, BAT, NSPS, PSES, and PSNS wastewater discharge rate for this subdivision is 5,682 l/kkg (1,263 gal/ton) of zirconium dioxide and hafnium dioxide produced. One plant practices total reuse of this water in other plant processes. One other facility discharges this water after 92 percent recycle. The BPT flow rate is based on the rate reported by the one plant which discharges this water after recycle.

(6) Iron extraction (MIBK) steam stripper bottoms are generated during the steam stripping process which removes iron from hafnium, following the liquid-liquid extraction process which separates zirconium from hafnium. This waste stream contains ammonia, solids, and toxic metals.

The BPT, BAT, NSPS, PSES, and PSNS wastewater discharge allowance for iron extraction (MIBK) steam stripper bottoms at proposal was 2,077 l/kkg (498 gal/ton) of zirconium and hafnium produced. Based on comments which the Agency received on the proposed rulemaking, it was decided that the mass of zirconium dioxide and hafnium dioxide produced is a more appropriate production normalizing parameter for this wastewater stream. The Agency also evaluated new flow and production data submitted after proposal with industry comments. The promulgated wastewater discharge rate for this subdivision is 2,244 l/kkg (538 gal/ton) of zirconium dioxide and hafnium dioxide produced. This rate is based on the average of the rates reported by the two facilities which generate this wastewater stream.

(7) Zirconium filtrate wastewater results from the precipitation and filtration of zirconium hydroxide during the separation process. This waste stream contains cyanide, MIBK, solids, and toxic metals.

The BPT, BAT, NSPS, PSES, and PSNS wastewater discharge allowance for zirconium filtrate at proposal was 71,190 l/kkg (17,078 gal/ton) of zirconium produced. Based on comments which the Agency received on the proposed rulemaking, it was decided that the mass of zirconium dioxide and hafnium dioxide produced is a more appropriate production normalizing parameter for this wastewater stream. The Agency also evaluated new flow and production data submitted after proposal with industry comments. The promulgated wastewater discharge rate for this subdivision is 38,790 l/kkg (9,297 gal/ton) of zirconium dioxide and hafnium dioxide produced. This rate is based on the average of the rates reported by the two facilities which generate this stream. No reuse or recycle of this wastewater is reported at either plant.

(8) Hafnium filtrate wastewater results from the precipitation and filtration of hafnium hydroxide during the separation process. This waste stream contains suspended solids and cyanide.

(9) Calcining caustic wet air pollution control wastewater results from wet scrubbers on the zirconium and hafnium calcining kilns. This stream is characterized by the presence of sodium sulfite.

The BPT wastewater discharge allowance for calcining caustic wet air pollution control at proposal was 17,856 l/kkg (4,284 gal/ton) of zirconium and hafnium produced. The proposed BAT, NSPS, PSES, and PSNS wastewater discharge rate was 1,786 l/kkg of zirconium and hafnium produced. This rate was based on 90 percent recycle of the proposed BPT flow rate. Based on comments which the Agency received on the proposed rulemaking, it was decided that the mass of zirconium dioxide and hafnium dioxide produced is a more appropriate production normalizing parameter for this wastewater stream. The Agency also evaluated new flow and production data submitted after proposal with industry comments. The promulgated BPT, BAT, NSPS, PSES, and PSNS wastewater discharge rate for this subdivision is 8,997 l/kkg (2,156 gal/ton) of zirconium dioxide and hafnium dioxide produced. While two plants generate this stream, only one plant reported sufficient information, including rate of recycle, to determine water use and discharge rates. The promulgated discharge allowance is based on the rate reported by this one facility, which currently practices 90 percent recycle. The discharge from the water scrubbers is reused in the separations operation and is therefore considered to be a process stream, not a wastewater. Discharge from the caustic scrubber is sent to evaporation ponds at one plant and to wastewater treatment at the other plant.

(10) Pure chlorination wet air pollution control wastewater results from wet scrubbers used to control fumes from the chlorination of calcined zirconium oxide or hafnium oxide. This waste stream is similar to the sand chlorination off-gas scrubber wastewater and contains solids and chlorine.

The BPT wastewater discharge allowance for pure chlorination wet air pollution control at proposal was 26,322 l/kkg (6,314 gal/ton) of zirconium and hafnium produced. The proposed BAT, NSPS PSES, and PSNS wastewater discharge allowance was 2,632 l/kkg of zirconium and hafnium produced. This rate was based on 90 percent recycle of the proposed BPT flow rate. The Agency has evaluated new flow and production data submitted after proposal with industry comments. The promulgated BPT, BAT, NSPS, PSES, and PSNS wastewater discharge rate for this subdivision is 38,317 l/kkg of zirconium and hafnium. The BPT rate is based on the rate reported by the one plant generating this waste stream. This facility currently practices 97 percent recycle of scrubber liquor prior to discharge.

(11) Reduction area-vent wet air pollution control wastewater results from water scrubbers on the reduction furnaces used for the magnesium reduction of zirconium and hafnium tetrachlorides. This stream contains solids and metals.

The BPT, BAT, NSPS, PSES, and PSNS wastewater discharge allowance for reduction area vent wet air pollution control at proposal was 658 l/kkg (158 gal/ton) of zirconium and hafnium produced. The Agency has evaluated new flow and production data submitted after proposal with industry comments. The promulgated wastewater discharge rate for this subdivision is 3,686 l/kkg of zirconium and hafnium. The BPT rate is based on the rate reported by the one plant which generates this stream. This facility currently practices 97 percent recycle of scrubber liquor prior to discharge.

(12) Magnesium recovery off-gas wet air pollution control wastewater results from wet scrubbers used to control fumes from the recovery of magnesium for the reduction process. This stream is characterized by low pH and the presence of magnesium and solids.

The BPT wastewater discharge allowance for magnesium recovery off-gas wet air pollution control at proposal was 13,161 l/kkg (3,157 gal/ton) of zirconium and hafnium produced. The proposed BAT, NSPS, PSES, and PSNS wastewater discharge rate was 1,316 l/kkg of zirconium and hafnium produced. This rate was based on 90 percent recycle of the proposed BPT flow rate. The Agency has evaluated new flow and production data submitted after proposal with industry comments. The promulgated wastewater discharge rate for this subdivision is 20,733 l/kkg of zirconium and hafnium. This rate is based on the rate reported by the one plant which generates this waste stream. This facility currently practices 96 percent recycle of scrubber liquor prior to discharge.

(13) Magnesium recovery area-vent wet air pollution control wastewater results from wet scrubbers used to control emissions from the reduction area. This stream is characterized by low pH and the presence of magnesium and solids.

The promulgated BPT, BAT, NSPS, PSES, and PSNS wastewater discharge allowance for magnesium recovery area vent wet air pollution control is 11,518 l/kkg of zirconium and hafnium produced. This flow is based on the discharge flow reported by the only plant generating this waste stream. This plant currently practices 96 percent recycle of the scrubber liquor prior to discharge. No allowance was given for this subdivision at proposal because no facilities had reported it. Industry comments on the proposed rulemaking indicated that one facility practiced wet scrubbing of magnesium recovery area ventilation fumes and included flow and production data which were used to calculate the production normalized flow.

(14) Zirconium chip crushing wet air pollution control wastewater is generated by wet scrubbers used for dust control when zirconium metal sponge is chipped out of the reduction container and crushed prior to purification. This stream contains solids and metals.

At proposal subdivisions 13 and 14 were combined into a single subdivision entitled magnesium recovery area wet air pollution control. We have determined that two subdivisions are appropriate to account for plant differences.

B. Control and Treatment Technologies and Treatment Effectiveness

1. Control and Treatment Technologies

Before proposing the nonferrous metals manufacturing regulation, EPA considered a wide range of control and treatment options including both in-process changes and end-of-pipe treatment. These options are discussed in detail in the preamble to the proposed nonferrous metals manufacturing regulation (49 FR 26352, June 27, 1984) and in the Notice of Availability (50 FR 10918, March 18, 1985). For the most part, the end-of-pipe model treatment technology proposed for each subcategory has been selected as the basis for the final rule. This technology is hydroxide precipitation (with additions of iron or polyelectrolyte coagulant aids as necessary) and sedimentation ("lime and settle") followed by multimedia filtration, activated carbon, and ion exchange where appropriate as polishing step, with flow reductions and pretreatment consisting of sulfide precipitation, iron coprecipitation, cyanide precipitation and ammonia steam or air stripping where appropriate.

2. Treatment Effectiveness

The treatment effectiveness of these technologies has been evaluated by observing their performance on nonferrous metals manufacturing and other similar wastewaters. Each technology is discussed below.

a. Lime and Settle Technology. Lime and settle is part of the model technology in the primary antimony, primary beryllium, primary and secondary germanium and gallium, metallurgical acid plants, primary molybdenum and rhenium, secondary molybdenum and vanadium, primary nickel and cobalt, primary precious metals and mercury, secondary precious metals, primary rate earth metals, secondary tantalum, secondary tin, primary and secondary titanium, secondary tungsten and cobalt, secondary uranium and primary zirconium and hafnium subcategories.

The data base for the performance and variability of hydroxide precipitation-sedimentation technology is a composite of data drawn from EPA protocol sampling and analysis of aluminum forming, copper forming, battery manufacturing, porcelain enameling, and coil coating wastewaters. These data, collectively called the combined metals data base ("CMDB"), include influent and effluent concentrations for the nine pollutants. The wastewaters from each of the five categories have been found to be statistically similar in all material respects. A separate study of statistical homogeneity of these wastewaters is part of the record for this rulemaking.

Two analyses were performed to evaluate these data. First, the mean wastewater pollutant concentrations of categories in the CMDB were compared statistically with the mean wastewater pollutant concentrations in the nonferrous data base. The technique used to compare these data is referred to as analysis of variance. The analysis of variance methodology is well known to statisticians and is sometimes referred to as a homogeneity analysis. The primary result of the analysis is that, except for lead (Pb), no significant statistical difference was detected between the mean effluent pollutant concentrations from categories in the CMDB and the mean effluent pollutant concentrations from the nonferrous phrase II category. The treatment effectiveness concentrations for Pb have been determined by using the treatment effectiveness concentrations developed from a data base which includes over 200 Pb concentration measurements from the effluent wastewaters of several lead battery manufacturing and secondary lead plants that employ lime precipitation and sedimentation treatment. The treatment effectiveness concentrations that were developed from this 200 data point set are substantially larger than those estimated from the CMDB. The procedures used to develop these Pb treatment effectiveness concentrations are described in a memorandum which is included in the record to this rulemaking.

The second analysis that the Agency conducted to support the nonferrous phase II rule also employed analysis of variance. The analysis of variance in this second analysis compares the mean wastewater pollutant concentrations among the nonferrous phase II subcategories. The results indicate that the mean pollutant concentrations measured in the subcategories of the nonferrous phase II category are generally similar across subcategories. A report which describes the methodology and results of the analysis of variance comparisons that have been performed to support the nonferrous phase II rulemaking is also included in the record.

We view the use of the combined metals data base as appropriate for setting effluent limitations for the following six pollutants in nonferrous metals manufacturing plants: cadmium, copper, lead, nickel, zinc, and TSS. There are several reasons for this conclusion:

(1) *Process Chemistry:* We believe that properly operated hydroxide precipitation and sedimentation will result in effluent concentrations that are directly related to pollutant solubilities. Since the nonferrous metals manufacturing raw wastewater matrix contains the same toxic pollutants in the same order of magnitude (for the most part) as the combined metals data base raw wastewater and the technology is solubility based, we believe the mean treatment process effluent and variability will be identical.

(2) *Homogeneity:* Homogeneity is the absence of statistically discernible differences among mean pollutant concentrations observed in a set of data. To determine homogeneity for this category, EPA examined the statistical similarity among wastewater pollutant concentrations in the nonferrous subcategories, as well as between the pooled nonferrous subcategories and the CMDB. The purpose of these analyses was to test the Agency's engineering judgment that the untreated wastewater characteristics observed in phase II of the nonferrous category were similar to those observed in the CMDB. In general, the results of the analysis showed that the nonferrous subcategories are statistically similar with respect to mean pollutant concentrations across subcategories. The results also show that the nonferrous metals manufacturing pollutant concentration data combined across subcategories are comparable to the CMDB pollutant concentration data. The similarity of nonferrous and CMDB untreated and treated wastewater pollutant concentrations was established through a statistical assessment. The results of the statistical analysis provide further support to EPA's engineering evaluation that lime precipitation and sedimentation treatment reduces the toxic metal pollutant concentrations in untreated nonferrous metals manufacturing phase II wastewaters to concentrations achieved by the same technology applied to the wastewater from the categories in the CMDB.

In general, the results of the analysis showed that the nonferrous subcategories are homogeneous with respect to mean pollutant concentrations across subcategories. Comparison of the untreated nonferrous metals manufacturing data combined across subcategories and the CMDB also showed good agreement.

(3) Nonferrous Metals Manufacturing Data Base. EPA collected and analyzed wastewater samples from 32 nonferrous metals manufacturing phase II operations to characterize untreated process wastewater and determine treatment system performance; 16 of which had lime and settle treatment in place. The samples were collected and analyzed using standard EPA sampling and analytical protocols. EPA evaluated each of the treatment systems and determined that existing lime and settle treatment was not adequately designed

or properly operated and therefore did not represent proper lime and settle treatment. A data base comprised of 23 pollutants from ten (10) of the phase II subcategories was compiled to provide representative untreated wastewater characterization data. This data was compared with untreated wastewaters in the CMDB and found to be within the range of values considered in that study.

For the nonferrous metals manufacturing phase I regulation, EPA sampled nine nonferrous metals manufacturing plants with lime precipitation and sedimentation. For the six plants with well-operated systems, we combined the EPA short-term sampling data with any available plant self-monitoring data and compared their long-term mean performance with the long-term mean performance calculated from the combined metals data base performance. These nonferrous metals manufacturing plants (phase I) are achieving a long-term mean performance that equals or betters the combined metals data base for five of six metals and TSS. These nonferrous metals plants exceed the 0.12 mg/l mean for lead by only 0.01 mg/l. (Additional discussion regarding revised variabilities for lead is found later in this section.) Because of process simularity between phase I and phase II plants the Agency believes this is added confirmation of the applicability of the CMDB treatment effectiveness values to nonferrous metals manufacturing phase II effluents.

(4) Commenters failed to present any data showing that they were unable to achieve in phase II limits based on the CMDB. As part of this phase II rulemaking, the Agency has received information including the same information previously submitted and evaluated for phase I and the phase I litigation of the nonferrous metals regulation. In the phase I rulemaking certain values within the CMDB were reevaluated and changed. These values were used in phase II of the nonferrous metals manufacturing regulation.

As explained in the nonferrous phase I final rulemaking, the Agency reviewed the variability of lime and settle technology for the pollutant lead. The Agency collected an additional two useable effluent samples from an integrated secondary lead and battery manufacturing plant which the Agency judges to have a state-of-the-art lime and settle treatment system. These data verified plant supplied data containing 199 days of daily lead concentration measured in the raw and treated wastewater for their lime and settle treatment system. When the 201 data points were combined with the three data points previously used in the CMDB and analyzed statistically, the long-term mean 0.12 mg/l as proposed was verified, but the one-day maximum and monthly average increased.

In the phase I rulemaking commenters from the primary lead, primary zinc, primary copper, and metallurgical acid plant subcategories submitted extensive self-monitoring which was resubmitted for this rulemaking. In addition, the Agency solicited design and operating parameters for the treatment systems from which the data were collected. Of the seven plants submitting data, the Agency determined that data from three of the plants should not be used to established treatment effectiveness because of design or operational deficiencies. Another phase I plant that submitted data was from the primary copper subcategory and was found to be operating its treatment system at pH 12 to optimize arsenic removal. At pH 12, metals removal for pollutants other than arsenic decreases due to the increased solubility of metals at higher pH levels. Therefore, the Agency believes effluent data from this plant are not appropriate to determine treatment performance for other plants in the category without this problem. After examining the arsenic values of the raw materials used by plants in the copper smelting subcategory, the Agency believes this one plant is the only discharger experiencing arsenic concentrations frequently over 100 mg/l in the raw wastewater. However, three of the remaining plants may be properly designed and, of these, the two primary zinc plants appear to have problems complying with the proposed zinc limitations (possibly due to extremely high influent zinc concentrations or to ammonia interferences) while another plant, from the primary lead subcategory, appears to have difficulty meeting the proposed limit for cadmium and lead. Although there were indications that these plants might not be operating optimally, the coefficient of variation for treated effluent was higher than for influent. The Agency, as a conservative measure, assumed that additional treatment with sulfide precipitation would be necessary for plants in these subcategories to meet the limitations which are based on the treatment effectiveness of lime and settle technology.

We are also promulgating limits based on chemical precipitation and sedimentation technology for certain pollutants not included in the combined metals data-base. Treatment performance concentrations for these pollutants are calculated either from nonferrous metals manufacturing data (for arsenic, selenium, silver, antimony, gold, platinum, palladium and molybdenum), or from categories with wastewaters similar to nonferrous metals manufacturing (fluoride and tin from electrical components manufacturing data, cobalt from porcelain enameling data, and tantalum, titanium, and tungsten from nonferrous metals forming). No treatment effectiveness concentrations are available for indium which is regulated in one subcategory. For this pollutant we have selected treatment effectiveness concentrations by comparing its theoretical solubility to pollutants in the CMDB at comparable pH levels. See 47 FR 26375, of proposed preamble. As we have discussed above, hydroxide precipitation and sedimentation technology is to a degree solubility related. As such, we believe that this additional pollutant will be reduced to the same effluent concentrations as the corresponding pollutant in the CMDB. The treatment performance concentrations for those pollutants not covered by the CMDB are discussed in detail in Section VII of the General Development Document.

b. *Filtration.* Filtration is part of the model technology for the primary antimony, primary beryllium, metallurgical acid plants, primary molybdenum and rhenium, secondary molybdenum and vanadium, primary nickel and cobalt, primary precious metals, secondary precious metals, primary rare earth metals, secondary tantalum, secondary tin, primary and secondary titanium, secondary tungsten and cobalt, secondary uranium and primary zirconium and hafnium subcategories. For cadmium, chromium, copper, nickel, zinc, iron and TSS, EPA established the pollutant concentrations achievable with lime precipitation, sedimentation, and polishing filtration with data from three plants with the technology in-place: one (phase I) nonferrous metals manufacturing plant and two porcelain enameling plants whose wastewater is similar (as determined by statistical analysis for homogeneity) to wastewater generated by nonferrous metals manufacturing plants. In generating long-term average standards, EPA applied variability factors based on the pooled variances from the combined metals data base because the combined data base provided a broader statistical basis for computing variability than the data from the three plants sampled. The use of lime and settle combined data base variability factors is probably a conservative assumption because filtration is a less variable technology than lime and settle, since it is less operator-dependent.

For pollutants for which there were no data technology than lime and settle, since it is less operator-dependent.

For pollutants for which there were no data relating to filtration effectiveness from these three plants, long-term concentrations were developed assuming that removal by filtration would remove 33 percent more pollutants than lime precipitation and sedimentation. This assumption was based upon a comparison of removals of several pollutants by lime precipitation, sedimentation, and filtration which showed 33 percent incremental removal attributable to filtration.

EPA selected this approach because of the extensive long-term data available from these three plants. We believe that the use of polishing filtration data from porcelain enameling plants is justified because porcelain enameling was included in the combined metals data base. Since we have determined that lime precipitation and sedimentation will produce identical results on both nonferrous metals manufacturing and porcelain enameling wastewater, it is reasonable for the Agency to assume that polishing filters treating these identical intermediate waste streams will produce an identical final effluent.

BAT limitations for all subcategories employing filtration are based on the data base for polishing filtration discussed above.

c. *Ammonia steam stripping.* Ammonia steam stripping is part of the model technology for the primary beryllium, primary molybdenum and rhenium, primary nickel and cobalt, secondary precious metals, secondary tungsten and cobalt, and primary zirconium and hafnium subcategories. This technology is used routinely to reduce ammonia concentrations. To evaluate treatment effectiveness, EPA collected chemical analysis data of raw waste (treatment influent) and treated waste (treatment effluent) from one plant in the iron and steel manufacturing category. These data form the data base for determining the effectiveness of ammonia steam stripping technology in this category and are contained within the administrative record supporting this regulation. We believe this treatment performance can be transferred to nonferrous subcategories because the technology is solubility related and the nonferrous subcategories considered here do not contain interfering agents that would reduce ammonia removal effectiveness.

An arithmetic mean of the treatment effluent data (from iron and steel) produced an ammonia long-term mean value of 32.2 mg/l. The one-day maximum, 10-day, and 30-day average concentrations attainable by ammonia steam stripping were calculated using the long-term mean of the 32.2 mg/l and the variability factors that express an overall pooled variance estimate developed from the combined metals data base. This produced ammonia concentrations of 133.3, 58.6, and 52.1 mg/l ammonia for the one-day maximum, 10-day, and 30-day averages, respectively.

The Agency has verified the proposed steam stripping performance values using steam stripping data collected at a zirconium-hafnium plant, a plant in the nonferrous phase II category, which has raw ammonia concentrations comparable to those in the iron and steel manufacturing data. Data collected by the plant represent almost two years of daily operations, and support the long-term mean used to establish treatment effectiveness.

Several comments were received stating that ammonia steam stripping performance data transferred from the iron and steel category are not appropriate for the nonferrous metals manufacturing category. Many of the commenters believe plugging of the column due to precipitates will adversely affect their ability to achieve the promulgated steam stripping performance values. In developing compliance costs, the Agency designed the steam stripping module to allow for a weekly acid cleaning to reduce plugging problems. Through Section 308 information requests, the Agency attempted to gather data at plants which stated they could not achieve the proposed limits. However, very little data were submitted to support their claims or document column performance. Therefore, the Agency has retained the proposed performance, which has been validated with steam stripping data from a zirconium-hafnium facility.

The Agency requested information on the effects of sulfates on the performance of an ammonia steam stripper. Commenters had argued that sulfate levels above one gram per liter interfered with the performance of the column, and consequently, the Agency should revise the limits for those subcategories with high sulfate streams.

After proposal and under Section 308 authority, we collected additional information from a plant manufacturing aluminum and columbium and forming various metals. This plant is able to achieve an average effluent ammonia concentration of 25 milligrams per liter with sulfate levels far in excess of 1 gram per liter. This plant which belongs to the Phase I portion of the category and to the nonferrous metals forming category, has wastewater streams similar to those encountered on the Phase II subcategories. Therefore, we have concluded that the proposed ammonia steam stripping limits are achievable by plants with high sulfates. We are promulgating these limits as proposed.

d. *Ammonia air stripping.* Ammonia air stripping is part of the model technology for the secondary molybdenum and vanadium subcategory.

This technology is used routinely to reduce ammonia concentrations. To evaluate treatment effectiveness, EPA used information submitted in the comments to the proposed regulation. The information consisted of raw waste (treatment influent) and treated waste (treatment effluent) from one plant in the primary beryllium subcategory. These data form the basis for determining the effectiveness of ammonia air stripping technology in this category and are contained in the administrative record supporting this regulation. We believe this treatment performance can be transferred to other nonferrous subcategories because the wastestreams are similar and the technology is solubility related.

A primary beryllium manufacturing plant was able to achieve an ammonia long-term mean value of 100 mg/l. The one-day maximum, 10-day, and 30-day average concentrations attainable by ammonia air stripping were calculated using the long-term mean of 100 mg/l and the variability factors that express an overall pooled variance estimate developed from the combined metals data base. This produced concentrations of 414, 182 and 162 mg/l of ammonia for the one-day maximum, 10-day, and 30-day averages respectively.

e. *Flow reduction.* Flow reduction is part of the model technology in the primary beryllium, primary molybdenum and rhenium, molybdenum metallurgical acid plants, primary precious metals and mercury, secondary precious metals, primary rare earth metals, primary and secondary titanium, secondary tungsten and cobalt, secondary uranium and primary zirconium and hafnium subcategories.

Flow reduction is a significant part of the overall pollutant reduction technology. Because of this, the Agency is promulgating mass-based limitations and standards which take into account the significant pollutant removal achieved by flow reduction model technology. Mass-based limits ensure reduction of the total quantity of pollutant discharge. The mass-based limitations and standards established for this category are derived as the product of the regulatory flow and the overall treatment effectiveness. The regulatory flows are based on flow data, normalized to production, supplied by the industry. Generally, we have relied on flow reduction as part of the BAT, NSPS, PSNS regulations. In those instances where flow reduction is demonstrated in the subcategory, we have also relied on it for the BPT regulations. The basis for flow reduction in each subcategory is discussed in detail in the development document.

There is one exception to this discussion. In those subcategories where we are not altering existing BPT requirements—bauxite refining and metallurgical acid plants—those limitations necessarily continue to be based on subcategory specific data.

f. *Iron coprecipitation technology.* Iron coprecipitation is part of the model technology for removing the pollutant molybdenum in the primary molybdenum and rhenium, molybdenum metallurgical acid plants and secondary molybdenum and vanadium subcategories. In the Agency's post-proposal sampling effort, we sampled a uranium manufacturing and forming plant that had treatable concentrations of molybdenum in the raw wastewater. This plant treats its wastewater through iron addition, lime, and settle; the iron coprecipitates molybdenum. This plant achieved treated effluent concentrations for molybdenum which were published in the notice of new data of March 18. Therefore, EPA is basing the molybdenum limitations and standards on the basis of the data collected from this uranium manufacturing and forming facility which includes iron coprecipitation in its treatment system. The long-term average concentration for molybdenum from the uranium manufacturing and forming facility is 1.83 mg/l for iron coprecipitation.

Iron coprecipitation is a widely used treatment technology and frequently occurs unintentionally in industrial wastewater treatment situations. Whenever iron is present at a high concentration in raw wastewater, it will act as a coprecipitant in a lime and settle treatment system and aid in the removal of other metal pollutants present in the wastewater. Iron coprecipitation is demonstrated at a uranium manufacturing and forming plant, as described above, and is equally applicable to other nonferrous metals manufacturing subcategories because the process wastewaters have similar characteristics. Further, the addition of iron for coprecipitation to aid in metals removals is considered a routine part of state-of-the-art lime and settle technology which should be implemented as required to achieve optimum removal of metals. Iron coprecipitation is discussed in more detail in Section VII of the Development Document.

g. *Cyanide precipitation.* The model technology for removing cyanide from process wastewaters in the primary beryllium, secondary precious metals, secondary tin and primary zirconium-hafnium is cyanide precipitation. This technology is frequently used in industrial applications. One nonferrous metals manufacturing Phase II plant in the secondary precious metals subcategory reported its use. The treatment performance for cyanide precipitation technology is transferred from the coil coating category. The Agency believes that cyanide precipitation should be equally effective at removing cyanide from nonferrous metals manufacturing Phase II wastewaters because the analysis of homogeneity has demonstrated similarity between the nonferrous metals manufacturing Phase II data base and the CMDB, which includes data on coil coating wastewaters.

h. *Sulfide precipitation.* Sulfide precipitation is part of the model technology for removing the pollutants arsenic and selenium in the primary antimony and metallurgical acid plant subcategories. It is widely used in the industry to improve metals removals. Most metal sulfides are less soluble than hydroxides, and the precipitates are frequently more dependably removed from water.

Sulfide precipitation is used in many process and wastewater treatment applications in nonferrous metals manufacturing. This technology is used to treat process wastewater discharges from cadmium recovery and to recover metals from zinc baghouse dusts at a U.S. nonferrous metals manufacturing plant. Another plant achieves complete recycle of electrolyte from copper refining through removal of metal impurities via sulfide precipitation. Primary tungsten is frequently separated from molybdenum via sulfide precipitation. In secondary tin production, lead is recovered from alkaline detinning solutions with sulfide precipitation just prior to electrowinning. In the production of beryllium hydroxide, sulfide precipitation is used to remove metal impurities prior to precipitating beryllium hydroxide. These demonstrations show that sulfide precipitation is in use in the nonferrous metals manufacturing category.

Sulfide precipitation also is used as a preliminary or polishing treatment technology for nonferrous metals manufacturing wastewater. A U.S. nonferrous metals manufacturing facility specifically uses sulfide precipitation operated at a low pH to recover specific toxic metals from the acid plant blowdown prior to discharging the wastewater to a lime and settle treatment system. Hydrogen sulfide is used to precipitate selenium. Arsenic is also precipitated as arsenic sulfide. The arsenic and selenium sulfides are removed in a plate and frame filter. EPA sampling at this plant found three-day averages of arsenic and selenium in the untreated acid plant blowdown of 4.74 mg/l and 21.5 mg/l, respectively. Composite samples of treated (sulfide precipitation and filtration) acid plant blowdown collected during the EPA sampling visit showed arsenic concentrations at 0.066, 0.348 and 0.472 mg/l. Likewise, the treated acid plant blowdown samples contained selenium concentrations at 0.015, 0.05, and 0.132 mg/l.

Sulfide precipitation may also be applied following or in conjunction with hydroxide precipitation (two-stage treatment-lime followed by sulfide). In these applications sulfide precipitation acts to further reduce toxic metal concentrations. Responses to Section 308 data collection portfolios indicate that there are five nonferrous metals manufacturing plants using sulfide precipitation as a polishing step—two primary zinc, one secondary silver plant, one secondary precious metals plant, and one plant which processes both secondary silver and secondary precious metals.

i. *Ion exchange.* Ion exchange is part of the model technology for removing the pollutants gold, platinum and palladium in the primary precious metals and mercury and secondary precious metals subcategories. It is demonstrated in the secondary precious metals subcategory.

Ion exchange is a process in which ions, held by electrostatic forces to charged functional groups on the surface of the ion exchange resin, are exchanged for ions of similar charge from the solution in which the resin is immersed. This is classified as a sorption process because the exchange occurs on the surface of the resin, and the exchanging ion must undergo a phase transfer from solution phase to solid phase. Thus, ionic contaminants in a waste stream can be exchanged for the harmless ions of the resin.

The list of pollutants for which the ion exchange system has proved effective includes aluminum, arsenic, cadmium, chromium (hexavalent and trivalent), copper, cyanide, gold, iron, lead, manganese, nickel, selenium, silver, tin, zinc, and more. Thus, it can be applied to a wide variety of industrial concerns. Because of the heavy concentrations of metals in their wastewater, the metal finishing industries utilize ion exchange in several ways. As an end-of-pipe treatment, ion exchange is certainly feasible, but its greatest value is in recovery applications. It is commonly used as an integrated treatment to recover rinse water and process chemicals. Some electroplating facilities use ion exchange to concentrate and purify plating baths. Also, many industrial concerns, including a number of nonferrous metals manufacturing plants, use ion exchange to reduce salt concentrations in incoming water sources.

Ion exchange is a versatile technology applicable to a great many situations. This flexibility, along with its compact nature and performance, makes ion exchange a very effective method of wastewater treatment.

C. Technology Basis for Final Regulations

A brief summary of the technology basis for the regulation is presented below. The selected technology basis is presented in the "Preamble to the Proposed Nonferrous Metals Manufacturing Point Source Category Effluent Limitations Guidelines Pretreatment Standards, and New Source Performance Standards" (49 FR 26352, June 27, 1984), the Notice of Data Availability and Request for comment (50 FR 10918, March 18, 1985), the general Development Document and its supplements.

BPT

The basic end-of-pipe treatment for BPT in this rulemaking consists of flow normalization, and lime and settle with preliminary treatment of ammonia steam stripping, air stripping, cyanide precipitation, iron coprecipitation, sulfide precipitation and ion exchange. We are transferring lime and settle treatment technology and performance for the primary antimony, primary beryllium, primary and secondary germanium and gallium, secondary indium, secondary mercury, metallurgical acid plants, primary molybdenum and rhenium, secondary molybdenum and vanadium, primary nickel and cobalt, secondary nickel, primary precious metals and mercury, secondary precious metals, primary rare earth metals, secondary tantalum, secondary tin, primary and secondary titanium, secondary tungsten and cobalt, secondary uranium, and primary zirconium and hafnium subcategories from aluminum forming, copper forming, battery manufacturing, porcelain enameling and coil coating plants. As discussed above, the data base for the performance of lime and settle is a composite of data from the industrial categories listed known as the combined metals data base (CMDB). This data base was selected because lime and settle treatment applied to nonferrous metals manufacturing wastewater in each of the subcategories listed above will result in effluent concentrations identical to those achieved by the plants in the CMDB. This is based on the fact that the raw wastewater matrix in each of these subcategories contains the same pollutants in the same order of magnitude as the combined metals data base raw wastewater. The CMDB was also selected because it was determined to be homogeneous with the raw wastewaters in these subcategories.

We are transferring steam stripping technology and performance for ammonia removal in the primary berylium, primary molybdenum and rhenium, primary nickel and cobalt, secondary precious metals, secondary tungsten and cobalt, and primary zirconium and hafnium subcategories of the nonferrous metals manufacturing phase II from one iron and steel manufacturing plant.

We are transferring air stripping performance for ammonia removal in the secondary molybdenum and vanadium subcategory of the nonferrous metals manufacturing phase II category from the primary beryllium subcategory. As discussed above, we believe that steam and air stripping performance can be transferred to these subcategories because the technology is solubility related, and because the raw wastewater concentrations of ammonia in these subcategories and in iron and steel manufacturing and primary beryllium are similar. We believes that plants in these subcategories will achieve effluent concentrations identical to those achieved by the one iron and steel plant and the primary beryllium plant.

One plant in the secondary precious metals subcategory currently uses cyanide precipitation to treat process wastewater. We are transferring cyanide precipitation performance for secondary precious metals and both technology and performance for the primary beryllium, primary and secondary tin, and the primary zirconium and hafnium subcategories in nonferrous metals manufacturing phase II from coil coating plants. We believe that the technology is transferrable to these subcategories because the raw wastewater concentrations are of the same order of magnitude as those observed in coil coating wastewater. In that cyanide precipitation converts all cyanide species to complex cyanides and that precipitation of the complexed cyanides is solubility related, we believe that the technology will achieve identical effluent concentrations in the nonferrous phase II categories noted above.

We are transferring sulfide precipitation technology for the primary antimony subcategory from the molybdenum metallurgical acid plants subcategory. We believe that the technology is transferrable because the raw wastewater concentrations are of the same order of magnitude as those observed in metallurgical acid plants. Full scale commercial sulfide precipitation units are in operation at numerous installations, including several plants in the nonferrous metals manufacturing category both in the U.S. and abroad.

We are transferring iron coprecipitation technology and performance for the primary molybdenum and rhenium, metallurgical acid plants and secondary molybdenum and vanadium subcategories from one uranium manufacturing and forming plant. We believe that the technology is transferrable because the process wastewaters have similar characteristics.

Ion exchange is demonstrated in the secondary precious metals and secondary silver subcategories. We are transferring ion exchange technology and performance for the primary precious metals from the secondary precious metals subcategory. We believe that the technology is transferrable because the raw wastewater concentrations are similar.

To fulfill our statutory obligation, we did propose BPT in those subcategories not addressed previously, namely primary antimony, primary beryllium, primary and secondary germanium and gallium, primary molybdenum and rhenium, secondary molybdenum and vanadium, primary nickel and cobalt, primary precious metals and mercury, secondary precious metals, primary rare earth metals, secondary tantalum, secondary tin, primary and secondary titanium, secondary tungsten and cobalt, secondary uranium, and primary zirconium and hafnium. We also proposed that molybdenum metallurgical acid plants be subject to existing limits already promulgated for copper, lead, and zinc metallurgical acid plants. We are now promulgating these BPT limitations as final regulations. We are not promulgating final BPT regulations for three subcategories that do not have any direct discharging plants: secondary indium, secondary mercury, and secondary nickel.

In developing BPT limitations, the Agency considered the amount of water used per unit of production (liters per kkg or metric ton) for each wastewater stream in each subcategory. In general, the regulatory flows for BPT were based on the average of the reported water use or discharge values. The Agency has used BPT regulatory flows based on flow reduction only in those unusual cases where water flow reduction is commonly practiced throughout the subcategory. Based on its reevaluation of existing data and additional data it collected since proposal, the Agency has revised some of the proposed regulatory flow allowances for the category. These changes are the result of post proposal sampling and clarification of information provided in comments on the proposal and Notice of Availability.

As noted above, these BPT mass limitations are based on end-of-pipe treatment consisting of lime precipitation and settling, and where necessary, preliminary treatment consisting of ammonia steam or air stripping, cyanide precipitation, sulfide precipitation, and iron coprecipitation where appropriate, activated carbon and ion exchange as a polishing step where appropriate. Thirty-four nonferrous metals manufacturing plants are direct dischargers. The Agency estimates that BPT will result in the removal of an estimated 339,247 kg of priority pollutants and 21,872,686 kg of total pollutants per year from estimated current discharge levels. The estimated capital investment cost of BPT is $4.0 million and the estimated annual cost is $5.6 million, in 1982 dollars. Unless otherwise noted below, all costs represent wastewater treatment equipment not in place. For each subcategory, it is our judgement that the benefits of effluent reduction justify the associated costs of compliance. The promulgated BPT limitations and technology basis for each subcategory are discussed in detail below.

Primary Antimony

We are promulgating BPT limitations for the primary antimony subcategory, based on lime precipitation and sedimentation technology with sulfide precipitation pretreatment to remove toxic metals and solids from combined wastewaters and to control pH. As discussed in the March 18, 1985, Notice of Availability on this rulemaking, EPA is adding sulfide precipitation technology in those situations where wastestreams contain high levels of multiple metallic pollutants. This additional treatment is added in case the facility has problems with the lime and settle system to assure that the promulgated limits are met. Lime and settle technology is in-place at the one discharger in this subcategory. The pollutants specifically regulated at BPT are antimony, arsenic, mercury, TSS, and pH. Lead had been proposed for regulation but after careful consideration, the Agency determined that it will be removed by the model treatment technology. Therefore, although a particular permit writer may require its limitation on a case-by-case basis, we will not promulgate national standards for that pollutant.

Implementation of the BPT limitations will remove annually an estimated 17,522 kg of toxic metals and 26,156 kg of pollutants including TSS over estimated current discharge. We project a capital cost of approximately $196,350 and an annualized cost of approximately $554,180 for achieving BPT limitations.

Bauxite Refining

EPA promulgated BPT effluent limitations for the bauxite refining subcategory on April 8, 1974, Subpart A of 40 CFR Part 421. The promulgated BPT is based on zero discharge of process wastewater except for an allowance for net precipitation that falls within process wastewater impoundments. EPA is not altering the promulgated bauxite refining regulation because it adequately characterizes BPT. We are making minor technical amendments to delete or correct reference to FDF considerations under Part 125 and pretreatment reference to Part 128. These changes do not reopen promulgated BPT regulations for purposes of review. The technology basis of the existing BPT is impoundment and recycle.

Primary Beryllium

We are promulating BPT limitations for the primary beryllium subcategory, based on lime precipitation and sedimentation technology to remove metals and solids from combined wastewaters and to control pH and fluoride, with the addition of in-process wastewater reduction, ammonia steam stripping to remove ammonia, and cyanide precipitation to remove cyanide. As discussed in the March 18, 1985, Notice of Availability on this rulemaking, EPA is adding cyanide precipitation and ammonia steam stripping to the BPT model treatment technology for this subcategory. This is necessary because the Agency has new information indicating that cyanide and ammonia are present in the wastestreams from this subcategory at treatable levels. Flow reduction is part of the BPT model technology because the only direct discharger in the subcategory already practices extensive recycle. The one discharger in the subcategory has lime and settle technology, cyanide distruction and ammonia air stripping in place.

The pollutants specifically regulated at BPT are beryllium, chromium, copper, cyanide, ammonia, fluoride, TSS, and pH. These pollutants were selected because they are present in the largest quantities in the raw wastewater.

Implementation of BPT limitations will remove 534 kg of toxic metals and cyanide from current discharge rates; it will remove 69,943 kg/yr of ammonia and 70,477 kg/yr of pollutants over estimated current discharge. Removals from raw wastewater are as estimated 2,698 kg/yr of toxic metals and cyanide, 69,943 kg/yr of ammonia, and 131,734 kg/yr of pollutants including TSS. We project $226,462 in capital costs and $211,151 in annual costs for achieving the promulgated BPT. These costs represent wastewaters treatment equipment not in place.

Primary and Secondary Germanium and Gallium

We are promulgating BPT requirements for the primary and secondary germanium and gallium subcategory. At proposal we had a two tier approach for regulating this subcategory. Level A provisions were applicable to facilities which only reduce germanium dioxide in a hydrogen furnace and wash and rinse the germanium product in conjunction with zone refining. Level B provisions were applicable to all other facilities in the subcategory. At proposal the technology basis for both Levels A and B for the BPT limitations was lime precipitation and sedimentation technology to remove metals, fluoride, and solids from combined wastewaters and to control pH. The promulgated BPT model technology is the same as was proposed but we no longer have two regulatory levels. The pollutants specifically regulated at BPT are arsenic, lead, zinc, fluoride, TSS, and pH. Germanium and gallium were proposed for regulation but the Agency has decided not to regulate these pollutants because they are expected to be controlled by the BPT technology. However, it is possible that these pollutants may be present in large concentrations at an individual plant. Therefore, the permitting or control authority may establish specific limitations for these metals on a case-by-case basis.

Although there are no existing direct dischargers in this subcategory, BPT is promulgated for any existing zero discharger that may elect to discharge at some point in the future. This action is deemed necessary because wastewaters from germaniumn and gallium operations which contain significant loadings of toxic pollutants are currently being disposed of in a RCRA permitted surface impoundment.

The cost and specific removal data for this subcategory were determined using a model plant. However they are not presented here because the data on which they are based have been claimed confidential. The Agency has determined that the pollutant reduction benefits associated with this regulation justify the costs for this subcategory.

Secondary Indium

We are not promulgating BPT limitations for the secondary indium subcategory since there are no existing direct dischargers.

Secondary Mercury

We are not promulgating BPT limitations for the secondary mercury subcategory since there are no existing direct dischargers.

Primary Molybdenum and Rhenium

We are promulgating BPT limitations for the primary molybdenum and rhenium subcategory, based on lime precipitation and sedimentation technology to remove metals and solids from combined wastewaters and to control pH, ammonia steam stripping and iron coprecipitation preliminary treatment. As discussed in the March 18, 1985 Notice of Availability on this rulemaking, EPA is added iron coprecipitation to the BPT model treatment technology for this subcategory. This technology is being added for the removal of molybdenum. Except for iron coprecipitation these technologies are already in-place at one of the two direct dischargers in the subcategory. The pollutants specifically regulated at BPT are arsenic, lead, nickel, selenium, molybdenum, ammonia, fluoride, TSS, and pH.

Implementation of the final BPT limitations will remove annually from current discharge an estimated 73,644 kg of toxic metals and cyanide, 737 kg of molybdenum, 63,443 kg of ammonia, and 51,529 kg of TSS. The total pollutant removal from current discharge annually is estimated to be 204,242 kg. While one of the discharging plants has the basic equipment components in-place to comply with BPT, we do not believe that either plant is currently achieving the BPT mass limitations.

The cost data for this subcategory are not presented here because the data on which they are based have been claimed to be confidential. The Agency has determined that the pollutant reduction benefits associated with this regulation justify the costs for this subcategory.

Metallurgical Acid plants

We are expanding the applicability of the existing BPT requirements established for the metallurgical acid plants subcategory to include the acid plants associated with primary molybdenum roasting operations. The technology basis for the existing BPT limitations is lime precipitation and sedimentation technology to remove metals and solids from combined wastewaters and to control pH, and sulfide precipitation and iron coprecipitation preliminary treatment. Some of these technologies are already in-place at both of the dischargers include under the expanded applicability. The pollutants specifically regulated at BPT are arsenic, cadmium, copper, lead, zinc, fluoride, molybdenum, TSS, and pH. Fluoride and molybdenum are being added in this regulation and are only applicable to molybdenum acid plants.

Compliance with the existing BPT limitations for metallurgical acid plants by the two direct discharging primary molybdenum facilities which operate sulfuric acid plants will result in the removal from current discharges of an estimated 4,432 kg of toxic metals, and 64,325 kg of pollutants including TSS. While both plants have the equipment in-place to comply the BPT, we do not believe that the plants are currently achieving the promulgated BPT limitations.

The cost data for this subcategory are not presented here because the data on which they are based have been claimed to be confidential. The Agency has determined that the pollutant reduction benefits associated with this regulation justify the costs for this subcategory.

Secondary Molybdenum and Vanadium

We are promulgating BPT requirements for the secondary molybdenum and vanadium subcategory based on lime precipitation and sedimentation technology to remove metals and solids from combined wastewaters and to control pH, iron coprecipitation to control molybdenum and ammonia air stripping to remove ammonia. We had proposed ammonia steam stripping preliminary treatment for this subcategory. However, our analysis showed that the costs of this technology may have caused the only facility in the subcategory to close. Therefore, we concluded that this technology is not practicable for this subcategory and decided to rely on air stripping of ammonia instead which is already in place at the one direct discharger in the subcategory. This change in technology mitigates the impact on the industry while still achieving removal of ammonia from the wastewaters. This is the only subcategory in phase II which will be subject to an ammonia limitation based on air stripping. As discussed in the March 18, 1985 Notice of Availability on this rulemaking, EPA is adding iron coprecipitation to the BPT model treatment technology for this subcategory. This technology is being added for the removal of molybdenum. Although some of these technologies are already in-place at the one discharger in the subcategory, we do not believe that it is meeting BPT mass limitations. The pollutants specifically selected for regulation at BPT are arsenic, chromium, lead, nickel, iron, molybdenum, ammonia, TSS, and pH. Implementation of these BPT limitations will remove annually from raw discharges an estimated 319 kg of toxic metals and cyanide, 18,477 of molybdenum, 563,160 of ammonia, 28,136 kg of TSS, and 641,666 kg total pollutants.

After proposal, the Agency sampled the only plant in this subcategory to obtain raw wastewater characteristics as well as production information. These new data were used to revise the subdivisions receiving allowances in the promulgated regulation. All the PNF's and PNP's have been revised to reflect the new information. The PNP for molybdenum filtrate solvent extraction raffinate was changed from amount of molybdenum produced to amount of both molybdenum and vanadium produced. The revisions to the PNF are discussed in detail in section IX of the subcategory supplemental development document. These changes reflect the data gathered in a post proposal sampling visit.

The cost data for this subcategory are not presented here because the data on which they are based have been claimed to be confidential. The Agency has determined that the pollutant reduction benefits associated with this regulation justify the costs for this subcategory.

Primary Nickel and Cobalt

We are promulgating BPT limitations for the primary nickel and cobalt subcategory, based on lime precipitation and sedimentation technology to remove metals and solids from combined wastewaters and to control pH, and ammonia steam stripping to remove ammonia. This is the same technology basis as was proposed. Lime precipitation and sedimentation technology is already in-place at the one discharger in the subcategory. The pollutants specifically regulated at BPT are copper, nickel, cobalt, amonia, TSS, and pH.

Implementation of the BPT limitations will remove from current discharges annually an estimated 241 kg of toxic metals and 252 kg of total pollutants.

The cost data for this subcategory are not presented here because the data on which they are based have been claimed to be confidential. The Agency has determined that the pollutant reduction benefits associated with this regulation justify the costs for this subcategory.

Secondary Nickel

We are not promulgating BPT limitations for the secondary nickel subcategory, since there are no existing direct dischargers.

Primary Precious Metals and Mercury

We are promulgating BPT requirements for the primary precious metals and mercury subcategory, based on lime precipitation and sedimentation technology to remove metals and solids from combined wastewaters and to control pH, and oil skimming to remove oil and grease and ion exchange as a polishing step. As discussed in the March 18, 1985 Notice of Availability on this rulemaking, we are adding ion exchange to the BPT model treatment technology for this subcategory. This technology is being added for the removal of gold. Some of these technologies are in-place at the one discharger in this subcategory. The pollutants specifically regulated at BPT are lead, mercury, silver, zinc, gold, oil and grease, TSS, and pH.

Implementation of the BPT limitations will remove annually from raw discharge an estimated 50,442 kg of toxic metals and 53,768 kg of toxic pollutants including TSS. We project a capital cost of $2,200 and an annualized cost of $26,814 for achieving BPT limitations.

Secondary Precious Metals

We are promulgating BPT limitations for the secondary precious metals subcategory, based on lime precipitation and sedimentation technology to remove metals and solids from combined wastewaters and to control pH, ammonia steam stripping to remove ammonia, cyanide precipitation to remove free and complexed cyanide and ion exchange as a polishing step.

Some of the plants in this subcategory have unusually high zinc levels. For those plants we have estimated costs of two stage precipitation using sulfide polishing as the second stage to control zinc to the desired levels and to overcome complexing problems. These costs have been considered in the economic impact analysis.

Chemical precipitation and sedimentation technology is already in-place at 20 of the plants in the subcategory including all three direct dischargers. One plant has cyanide precipitation in-place. The pollutants specifically regulated at BPT are copper, cyanide, zinc, gold, platinum, palladium, ammonia, TSS, and pH.

Implementation of the BPT limitations will remove annually from current discharges and estimated 94 kg of toxic pollutants (which include 63 kg of cyanide), and 4,677 kg of pollutants including 494 kg of ammonia, and 2,946 kg of TSS.

The cost data for this subcategory are not presented here because the data on which they are based have been claimed to be confidential. As discussed below, EPA's economic impact analysis shows that one secondary precious metals plant may close as a result of incurring the costs of this regulation. After evaluating these costs and, in particular, the closure of this facility, the Agency has determined that the pollutant reduction benefits associated with this regulation justify the costs for this subcategory.

Primary Rare Earth Metals

We are promulgating BPT limitations for the primary rare earth metals subcategory, based on lime precipitation and sedimentation technology to remove metals and solids from combined wastewasters and to control pH. This is the same technology basis as was proposed. These technologies are already in-place at the one direct discharger in the subcategory. The pollutants specifically regulated at BPT are chromium, lead, nickel, TSS, and pH.

Compliance with the BPT limitations will remove annually from raw an estimated 3.93 kg of toxic metals and 969 kg of total pollutants including TSS (no toxic organics would be removed). The existing discharger is currently meeting BPT requirements. We project no capital cost for achieving BPT because the technology to be installed is already in-place at the one direct discharging facility in this subcategory. Annual operating costs, however, are estimated to be $28,744.

Secondary Tantalum

We are promulgating BPT limitations for the secondary tantalum subcategory, based on lime precipitation and sedimentation technology to remove metals and solids from combined wastewaters and to control pH. This is the same technology basis as was proposed. These technologies are already in-place at all three of the dischargers in the subcategory. The pollutants specifically regulated at BPT are copper, lead, nickel, zinc, tantalum, TSS, and pH.

Implementation of the BPT limitations will remove annually from current discharges an estimated 26,268 kg of toxic metals, 1,490 kg of tantalum and 51,392 kg of pollutants including TSS.

The cost data for this subcategory are not presented here because the data on which they are based have been claimed to be confidential. The Agency has determined that the pollutant reduction benefits associated with this regulation justify the costs for this subcategory.

Secondary Tin

We are promulgating BPT requirements for the secondary tin subcategory, based on lime precipitation and sedimentation technology to remove metals, fluoride, and solids from combined wastewaters and to control pH, with preliminary treatment consisting of cyanide precipitation for certain building blocks. The model treatment technology for the proposed BPT effluent limitations guidelines also include ammonia steam stripping. However, data collected after proposal under section 308 of the Act indicate that ammonia is not necessarily essential in the hydrometallurgical recovery of tin. Therefore, EPA is not establishing an allowance for ammonia because none of the discharging plants currently use it. Moreover, permit writers should not provide any allowance for ammonia in secondary tin processing because there are demonstrated processes in use by the industry that do not require the use of ammonia. Chemical precipitation and sedimentation technology is already in-place at two of the three direct dischargers in the subcategory.

The pollutants specifically regulated at BPT in building blocks related to hydrometallurgical tin recovery are cyanide, lead, tin, fluoride, TSS, and pH. The pollutants specifically regulated at BPT in building blocks related to recovery of tin with pyrometallurgical processes are arsenic, lead, iron, tin, TSS and pH.

After proposal we sampled a secondary tin plant using pyrometallurgical processes to recover tin. The new data collected was used to revise the pollutants selected for regulation and the PNF for one building block in the subcategory, tin smelter SO_2 scrubber.

Implementation of the BPT limitations will remove annually from raw discharge an estimated 688 kg of toxic metals, 144 kg of cyanide, 237,220 kg of fluoride, and 506,900 kg of TSS, for a total pollutant removal of 800,967 kg. Projected capital costs are estimated to be approximately $841,285 while annual costs are estimated to be $692,625. The Agency has determined that the pollutant reduction benefits associated with compliance justify the costs for this subcategory.

Primary and Secondary Titanium

We are promulgating BPT limitations for the primary and secondary titanium subcategory, based on lime precipitation and sedimentation technology to remove metals and solids from combined wastewaters and to control pH, and oil skimming preliminary treatment for streams with treatable concentrations of oil and grease. This is the same technology basis as was proposed. These technologies are already in-place at two of the four direct dischargers in the subcategory. As discussed in the March 18, 1985 Notice of Availability on this rulemaking we are modifying the treatment effectiveness numbers used in determining the limitations for the pollutant titanium. At proposal the Agency did not have treatment effectiveness data for titanium. Since proposal, we have collected treatment effectiveness data for lime and precipitation systems from 9 nonferrous metals forming plants. Because the pollutant concentrations and flows at the forming plants are similar to those in this subcategory, we believe the forming treatment effectiveness data is applicable here. EPA proposed a two tier regulatory scheme for this subcategory, with the same technologies applying to both tiers at BPT. The pollutants specifically regulated at BPT are chromium, lead, nickel, titanium, oil and grease, TSS, and pH. We are now exempting from national regulation facilities in the second tier, those which do not practice electrolytic recovery of magnesium and which use vacuum distillation instead of leaching to purify titanium sponge because the amounts and toxicity of the discharges are very small and do not justify national regulations.

Implementation of the BPT limitations will remove annually from raw discharges an estimated 217 kg of toxic metals and cyanide, 5,791 kg of titanium, 64,446 kg of TSS and 99,409 kg of total pollutants. While two plants have the equipment in-place to comply with BPT, we do not believe that the plants are currently achieving the final BPT limitations. We project a capital cost of $644,489 and an annualized cost of $505,309 for achieving BPT in all plants.

As discussed below, EPA's economic impact analysis shows that two facilities in this subcategory will close regardless of this regulation. Data submitted by the plants to EPA after proposal indicate the plants have been operating at a loss. All other discharging facilities in this subcategory are expected to remain viable after incurring the costs of this regulation.

Secondary Tungsten and Cobalt

We are promulgating BPT limitations for the secondary tungsten and cobalt subcategory, based on lime precipitation and sedimentation technology to remove metals and solids from combined wastewaters and to control pH, oil skimming and ammonia steam stripping to remove ammonia. This is the same technology basis as was proposed. Lime precipitation and sedimentation technology is already in place at three direct dischargers in the subcategory. As discussed in the March 18, 1985 Notice of Availability on this rulemaking. We are adding the pollutant tungsten for this subcategory because it is the principal metal being manufactured in the subcategory. We have collected treatment effectiveness data for the pollutant tungsten from post proposal sampling of a nonferrous metals forming plant. Because the pollutant concentrations and flows of that plant are similar to this subcategory, we believe the performance data is applicable here. The pollutants specifically regulated at BPT are copper, nickel, cobalt, tungsten, ammonia, oil and grease, TSS, and pH.

Implementation of the BPT limitations will remove annually from current discharge an estimated 150,600 kg of toxic metals, 9,456 kg of cobalt, 9,417 kg of tungsten, 108,700 kg of TSS and 420,200 total pollutants.

The cost data for this subcategory are not presented here because the data on which they are based have been claimed to be confidential. The Agency has determined that the pollutant reduction benefits associated with this regulation justify the costs for this subcategory.

Secondary Uranium

We are promulgating BPT limitations for the secondary uranium subcategory, based on lime precipitation and sedimentation technology to remove metals and solids from combined wastewaters and to control pH. The proposed BPT was also based on ammonia steam stripping. However, data collected after proposal indicated that ammonia is no longer used in the secondary uranium processing. Therefore, EPA is not promulgating limitations for ammonia and ammonia steam stripping is not part of the model technology. These technologies are already in-place at the two dischargers in the subcategory. The pollutants specifically regulated at BPT are chromium, copper, nickel, fluoride, TSS, and pH. Effluent limitations for uranium have not been established in this subcategory. Pursuant to the Supreme Court's ruling in *Train* v. *Colorado Public Interest Research Group*, 426 U.S. 1 (1976), EPA lacks the authority under the Clean Water Act to regulate this pollutant since it is a "source", material as defined by the Nuclear Regulatory Commission under the Atomic Energy Act.

Implementation of the BPT limitations will remove annually from raw discharges an estimated 99.78 kg of toxic metals, 5,034 pollutants including 651 kg of TSS. While one discharging plant has the equipment in-place to comply with BPT, we do not believe that this plant is currently achieving the final BPT limitations. We project capital and annual costs of $54,821 and $90,422 (1982 dollars) repectively for modifications to technology presently in-place at the discharging facilities to achieve BPT regulations.

Primary Zirconium and Hafnium

We are promulgating BPT limitations for the primary zirconium and hafnium subcategory, based on lime precipitation and sedimentation technology to remove metals and solids from combined wastewaters and to control pH plus ammonia steam stripping and cyanide precipitation preliminary treatment of streams containing ammonia, or cyanide. EPA proposed a two tier regulatory scheme for this subcategory, with the same technologies applying to both tiers at BPT. The Agency has decided to exclude from national regulations plants which only produce zirconium or zirconium—nickel alloys by magnesium reduction of zirconium dioxide because currently there are no such discharging plants in existence. Therefore, the promulgated regulation will not have two tiers. The proposed BPT was also based on barium coprecipitation for removal of radium 226 from the wastewaters of this subcategory. We have deleted from this regulation the pollutant radium 226 because the Agency data collected after proposal indicates that it is not present at treatable levels in the raw wastewaters of this subcategory. However, if this pollutant is present in discharges from this subcategory, a permit writer should regulate it on a case by case basis. The subcategory supplemental development document will provide guidance on the treatment technology and its effectiveness for radium 226 removal. Lime precipitation and sedimentation technology and ammonia steam stripping is already in-place at one discharger in the subcategory. The pollutants specifically regulated at BPT are chromium, cyanide, lead, nickel, ammonia, TSS, and pH.

Implementation of the BPT limitations will remove annually from estimated current discharge an estimated 14,110 of toxic metals and cyanide, and 19.4 million kg of pollutants including 36,240 kg of TSS.

The cost data for this subcategory are not presented here because the data on which they are based have been claimed to be confidential. The Agency has determined that the pollutant reduction benefits associated with compliance justify the costs for this subcategory.

BAT

The general end-of-pipe technology basis for the promulgated BAT mass limitations is based on the model BPT technology plus in-process flow reduction and multimedia filtration following lime and settle treatment. Preliminary treatment technology includes ammonia steam stripping, sulfide precipitation, iron coprecipitation, cyanide precipitation, ammonia air stripping where required and ion exchange as a polishing step.

End-of-pipe filtration is demonstrated at 23 nonferrous metals plants in subcategories covered under nonferrous metals manufacturing phase I, and two plants covered under phase II in the primary nickel and cobalt and secondary precious metals subcategories. We are transferring end-of-pipe filtration technology in all subcategories where it is not demonstrated and filtration performance for the Primary Antimony, Primary Beryllium, Primary Molybdenum and Rhemium, Secondary Molybdenum and Vanadium, Primary Nickel and Cobalt, Primary Precious Metals and Mercury, Secondary Precious Metals, Primary Rare Earth Metals, Secondary Tantalum, Secondary Tin, Primary and Secondary Titanium, Secondary Tungsten and Cobalt, Secondary Uranium, and Primary Zirconium and Hafnium subcategories of this final rulemaking from one nonferrous metals manufacturing plant and two porcelain enameling plants. As discussed in section V of this preamble, this data base was selected because the raw wastewater among plants in nonferrous metals manufacturing phase II and in categories in the CMDB is similar. We believe that filtration will achieve the same effluent concentrations for nonferrous metals manufacturing wastewater as for the one nonferrous metals manufacturing and two porcelain enameling plants. In addition, filtration adds reliability to the treatment system by making it less susceptible to operator error and to sudden changes in raw wastewater flows and concentrations.

The technolgy and performance, basis, for cyanide precipitation and ammonia steam or air stripping is the same as that discussed for BPT above.

We are transferring sulfide precipitation technology and performance for the primary antimony subcategory from the molybdenum metallurgical acid plants subcategory. We believe that the technology is transferrable because the raw wastewater concentrations are of the same order of magnitude as those observed in metallurgical acid plants. Full scale commercial suldite precipitation units are in operation at numerous installations, including several plants in the nonferrous metals manufacturing category both in the U.S. and abroad.

We are transferring iron coprecipitation technology and performance for the primary molybdenum and rhenium, metallurgical acid plants and secondary molybdenum and vanadium subcategories from one uranium manufacturing and forming plant. We believe that the technology is transferrable because the process wastewaters have similar characteristics.

Ion exchange is demonstrated in the secondary precious metals and secondary silver subcategories. We are transferring ion exchange technology and performance for the primary precious metals from the secondary precious metals subcategory. We believe that the technology is transferrable because the raw concentrations are similar.

In developing BAT limitations, the Agency considered the amount of water used per unit of production (liters per kilogram) for each wastewater stream. In-process flow reduction is an integral part of the promulgated BAT in the primary beryllium, primary molybdenum and rhenium, primary precious metals and mercury, secondary precious metals, primary rare earths, primary and secondary titanium, secondary uranium, and primary zirconium and hafnium subcategories. Flow reduction is demonstrated in the category for wet air pollution control wastewater, contact cooling water and floor wash wastewater. The demonstration status of in-process flow reduction and the level of recycle considered for this final rulemaking are discussed more fully in the preamble to the proposed regulation and in the development documents for individual subcategories. Flow reduction measures result in concentrating the pollutants present in wastewater. Treatment of a more concentrated stream allows a greater net removal of pollutants and a reduced flow may reduce the size of the treatment equipment and hence the cost of treatment. EPA estimates investment costs of $4.6 million and annual costs of $5.9 million above equipment in place to comply with the BAT limitations. Implementation of the BAT limitations will remove from current discharges an estimated 340,800 kg/yr of toxic pollutants annually. As explained in Section VI below, we have concluded that the costs of achieving limitations based on the model technologies for each subcategory are reasonable and for limitations are economically achievable for each subcategory.

The complexity and cost of analyses for toxic pollutants found in the nonferrous metals manufacturing category wastewaters has prompted EPA to develop an alternative method of controlling toxic pollutants. Instead of establishing specific effluent limitations for each of the toxic metals found in the category's raw wastewaters above treatable concentrations, the Agency is establishing effluent limitations for certain toxic and nonconventional metals as "indicator" pollutants. The data available to EPA show that control of the selected "indicator" pollutants will result in the substantial removal of other toxic pollutants found in the wastewaters but not specifically limited. By establishing specific limitations and standards for only the "indicator" pollutants, the Agency will reduce the difficulty, cost, and delays of pollutant monitoring and analyses that would result if pollutant limitations are established for each toxic pollutant. However, permit writers are free to write limits for indicated pollutants, in addition to the guideline limitations on indicator pollutants, in appropriate situations such as when indicated pollutants are present at a particular plant in higher concentrations than indicator pollutants. (Permit writers may consult the development documents for a list of all pollutants present in order to determine whether such additional limitations are necessary.)

The selected technology basis and regulated pollutant parameters are discussed below for each subcategory.

Primary Antimony

EPA is promulgating BAT limitations for this subcategory based on lime precipitation and sedimentation with the addition of filtration and sulfide precipitation preliminary treatment. This technology is more stringent than for the regulations proposed. As explained in the Notice of Availability (50 FR 10918, March 18, 1985), sulfide precipitation has been added to the technology basis for this subcategory since proposal. The additional treatment is necessary to remove large amounts of arsenic present in the raw wastes from this subcategory.

The pollutants specifically limited under BAT are antimony, arsenic, lead, and mercury.

Implementation of the BAT limitations would remove annually an estimated 17,540 kg of toxic pollutants, which is 18 kg of toxic metals over the estimated BPT discharge. Estimated capital cost for achieving final BAT is $208,312; annualized cost is $560,418.

Bauxite Refining

We are promulgating the proposed minor technical amendments to delete or correct references to FDF considerations under Part 125 and pretreatment references to Part 128. We are not altering the existing BAT (promulgated on April 8, 1974 under Subpart A of 40 CFR Part 421) which prohibits the discharge of process wastewater except for an allowance for net precipitation that falls within process wastewater impoundments.

The Agency indicated at proposal that it was considering establishing limits for phenols. As explained above, the EPA has determined that national regulations are not warranted. Information collected by the Agency as a result of comments regarding the treatment of the red mud impoundment effluent to remove toxic organic pollutants will be published as guidance to permit writers for control of phenolics on the net precipitation discharge from red-mud ponds based on activated carbon treatment.

Primary Beryllium

EPA is promulgating BAT limitations for this subcategory based on lime precipitation and sedimentation with the addition of in-process wastewater flow reduction, and filtration preceded by ammonia steam stripping and cyanide precipitation. For the reasons discussed above cyanide precipitation and ammonia steam stripping have been added to the BAT model treatment technology. Flow reduction is based on data received after proposal showing that the existing discharger uses greater than 90 percent recycle of beryllium oxide calcining furnace wet air pollution control. The one beryllium plant currently generating beryllium oxide calcining furnace wet air pollution control wastewater currently practices recycle. See Section VA for a detailed discussion of the PNF for this subcategory.

The pollutants specifically limited under BAT are beryllium, chromium, copper, cyanide, ammonia and fluoride.

For the same reasons discussed under BPT above, EPA is adding ammonia and cyanide for this subcategory. Implementation of these final BAT limitations would remove annually an estimated 542 kg of toxic pollutants including cyanide, which is 8 kg of toxic pollutants over the amount removed at BPT.

The costs data for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. The Agency has determined that BAT limitations for this subcategory are technically feasible and economically achievable.

Primary and Secondary Germanium and Gallium

EPA is promulgating BAT limitations for this subcategory based on lime precipitation and sedimentation (BPT technology) for all facilities in this subcategory. We had proposed a two tier approach for regulating this subcategory. Level A limitations based on lime precipitation and sedimentation were to apply to plants that only reduce germanium oxide in a hydrogen furnace and then wash and rinse the germanium product in conjunction with zone refining. Level B BAT limitations based on lime precipitation and sedimentation with the addition of filters were proposed for all other facilities in this subcategory. EPA has decided, however, not to include filtration as part of the model technology for the Level B plants. Therefore, we no longer have two regulatory levels for this subcategory.

The Agency has decided to apply the same technology levels to this entire subcategory because the addition of filters would only remove an estimated 9.2 kg of toxic pollutants annually. The Agency believes that the costs involved do not warrant selection of filtration as part of the BAT model technology.

The pollutants specifically limited under BAT are arsenic, lead, zinc, and fluoride. For the same reasons discussed at BPT germanium is not being regulated in this subcategory.

Although there are no existing direct dischargers in this subcategory, BAT is promulgated for any existing zero discharger who elects to discharge at some point in the future. This action was deemed necessary because wastewaters from germanium and gallium operations which contain significant loadings of toxic pollutants are currently being disposed of in a RCRA permitted surface impoundment.

Using a model plant, it is estimated that plants in this subcategory would remove from raw wastewaters 584 kg of toxic pollutants and 36,960 kg of pollutants annually.

The model plant costs data for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. The Agency has determined that BAT limitations for this subcategory are technically feasible and economically achievable.

Secondary Indium

EPA is not promulgating BAT limitations for the secondary indium subcategory since there are no existing direct dischargers.

Secondary Mercury

EPA is not promulgating BAT limitations for the secondary mercury subcategory since there are no existing direct dischargers.

Primary Molybdenum and Rhenium

EPA is promulgating BAT limitations for this subcategory based on preliminary treatment of ammonia steam stripping, iron coprecipitation and filtration, end-of-pipe treatment consisting of lime precipitation and sedimentation, with the addition of inprocess wastewater reduction, and filtration. Flow reductions are based on 90 percent recycle of scrubber liquor, a rate demonstrated by one of the two direct discharger plants. For the reasons discussed at BPT above, we have added iron coprecipitation to the BAT model treatment technology.

The pollutants specifically limited under BAT are arsenic, lead, nickel, selenium, molybdenum, ammonia, and fluoride. Molybdenum and the regulated toxic metals are considered as indicator pollutants to ensure proper operations of the technology and adequate removal of the unregulated toxic metal pollutants.

Implementation of the BAT limitations would remove annually from current discharges an estimated 73,655 kg of toxic pollutants, which is 11 kg of toxic pollutants greater than the estimated BPT removal. No additional ammonia is removed at BAT.

Metallurgical Acid Plants

As indicated above, we are expanding the applicability of the existing BAT limitations for metallurgical acid plants to include acid plants associated with primary molybdenum roasting operations. The existing BAT limitations are based on the BPT technology (lime precipitation and sedimentation, sulfide precipitation, iron coprecipitation preliminary treatment) with the addition of in-process wastewater reduction, and filtration. Flow reductions are based on 90 percent recycle of scrubber liquor. For the reasons discussed at BPT above, iron coprecipitation is being added to the BAT model technology.

Compliance with the BAT limitations for the existing metallurgical acid plants subcategory by the two direct discharging primary molybdenum facilities which operate sulfuric acid plants will result in the annual removal from current discharges of an estimated 4,651 kg of toxic pollutants which is 219 kg of toxic pollutants greater than the estimated BPT removal and 67,539 kg of total pollutants including molybdenum.

The costs data for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. The Agency has determined that BAT limitations for this subcategory are technically feasible and economically achievable.

Secondary Molybdenum and Vanadium

EPA is promulgating BAT limitations for this subcategory based on preliminary treatment consisting of ammonia air stripping followed by end-of-pipe treatment consisting of iron coprecipitation, lime precipitation and sedimentation and filtration. At proposal, BAT was based on steam stripping, lime precipitation and sedimentation, and filtration. For the reasons discussed at BPT above, we are adding ammonia air stripping and iron coprecipitation to the BAT model technology.

The pollutants specifically limited under BAT are arsenic, chromium, lead, nickel, iron, molybdenum and ammonia. Molybdenum and the regulated toxic metals are considered as indicator pollutants to ensure proper operations of the technology and adequate removal of the unregulated toxic metal pollutants.

Implementation of the BAT limitations would remove annually from raw discharge an estimated 395 kg of toxic pollutants, which is 76 kg of toxic metals greater than the estimated BPT removal and 642,722 kg of total pollutants including molybdenum and ammonia.

The costs data for this subcategory are not presented here because the data on which they are based have been claimed to be confidential. The Agency has determined that BAT limitations for this subcategory are technically feasible and economically achievable.

Primary Nickel and Cobalt

EPA is promulgating BAT limitations for this subcategory based on preliminary treatment of ammonia steam stripping followed by end-of-pipe treatment consisting of lime precipitation and sedimentation and filtration. This is the same technology basis as was proposed. Filters are presently utilized by the one plant in this subcategory.

We are promulgating filtration as part of the BAT technology because this technology is demonstrated in the primary nickel and cobalt subcategory (the one discharger in this subcategory presently has a filter, and a total of 25 facilities in eight nonferrous metals manufacturing subcategories currently have filters), and results in additional removals of toxic metals. In addition, filtration adds reliability to the treatment system by making it less susceptible to operator error and to sudden changes in raw wastewater flows and concentrations.

The pollutants specifically limited under BAT are cobalt, copper, nickel, and ammonia.

Implementation of the BAT limitations would remove from current discharges annually an estimated 246 kg of toxic metals, which is 5 kg of toxic metals greater than the estimated BPT removal, and 263 kg of total pollutants. Cobalt and the regulated toxic metals are considered as indicator pollutants to ensure proper operations of the technology and adequate removal of the unregulated toxic metal pollutants.

The costs data for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. The Agency has determined that BAT limitations for this subcategory are demonstrated, technically feasible and economically achievable.

Secondary Nickel

EPA is not promulgating BAT for the secondary nickel subcategory since there are no existing direct dischargers.

Primary Precious Metals and Mercury

EPA is promulgating BAT limitations for this subcategory based on preliminary treatment consisting of oil skimming and end-of-pipe treatment consisting of lime precipitation and sedimentation with filtration and ion exchange as a polishing step. BAT also includes flow reduction. This is the same as at proposal. For the reasons discussed at BPT above ion exchange is included as part of the BAT model treatment technology for this subcategory.

The pollutants specifically limited under BAT are lead, mercury, silver, zinc and gold. The pollutant gold is being added to the BAT regulated pollutants for reasons explained at BPT above. Gold and the regulated toxic metals are considered as indicator pollutants to ensure proper operations of the technology and adequate removal of the unregulated toxic metal pollutants.

Implementation of the BAT limitations would remove from raw wastes annually an estimated 50,443 kg of toxic pollutants, which is 1.0 kg of toxic metals greater than the estimated BPT removal. No additional oil and grease is removed at BAT. The estimated capital cost required to achieve BAT is $3,025; annualized cost is $27,268.

The Agency has determined that BAT limitations for this subcategory are technically feasible and economically achievable.

Secondary Precious Metals

EPA is promulgating BAT limitations for this subcategory based on preliminary treatment of cyanide precipitation and ammonia steam stripping and end-of-pipe treatment consisting of chemical precipitation and sedimentation with the addition of in-process wastewater flow reduction, filtration and ion exchange. This is the same technology basis as for proposal except that ion exchange is being added to the BAT model treatment technology for the reasons discussed at BPT above. Flow reductions are based on recycle of scrubber effluent. Twenty-one of the 29 existing plants currently have scrubber liquor recycle rates of 90 percent or greater. Filters also are presently utilized by one plant in the subcategory.

The pollutants specifically limited under BAT are copper, cyanide, zinc, ammonia, gold, platinum and palladium. Gold, platinum and palladium and the regulated toxic metals are considered as indicator pollutants to ensure proper operations of the technology and adequate removal of the unregulated toxic metal pollutants.

Implementation of the BAT limitations would remove annually from raw discharges an estimated 34,580 kg of toxic pollutants, which is 10 kg of toxic pollutants greater than the estimated BPT removal. No additional ammonia or cyanide is removed at BAT.

The costs data for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. The Agency has determined that BAT limitations for this subcategory are technically feasible and economically achievable.

Primary Rare Earth Metals

EPA is promulgating BAT limitations for this subcategory based on lime precipitation and sedimentation with the addition of in-process flow reduction, filtration and activated carbon. This is the same technology basis as was proposed. Flow reduction is based on 90 percent recycle of scrubber effluent.

As discussed in greater detail below, activated carbon adsorption technology is promulgated to control the discharge of hexachlorobenzene which is not effectively removed by existing treatment in the subcategory. Activated carbon technology is transferred from the iron and steel category where it is a demonstrated technology for removal of toxic organics. The use of activated carbon to remove dissolved organics from water and wastewater is a long demonstrated technology. It is one of the most efficient organic removal processes available. This sorption process is reversible, allowing activated carbon to be regenerated for reuse by the application of heat and steam or sovent. Activated carbon has also proved to be an effective adsorbent for many toxic metals, including mercury. Regeneration of carbon which has adsorbed significant metals, however, may be difficult.

Activated carbon removes contaminants from water by the process of adsorption, or the attraction and accumulation of one substance on the surface of another. Activated carbon preferentially adsorbs organic compounds and, because of this selectivity, is particularly effective in removing organic compounds from aqueous solution.

Isotherm tests have indicated that activated carbon is very effective in adsorbing 65 percent of the organic priority pollutants and is reasonbly effective for another 22 percent. Specifically, for the organics of particular interest, activated carbon was very effective in removing 2,4-dimethylphenol, fluoranthene, isophorone, naphthalene, all phthalates, and phenanthrene. It was reasonably effective on 1,1,1-trichloroethane, 1,1-dichloroethane, phenol, and toluene. Section VII of the general development document summarizes the treatment effectiveness for most of the organic priority pollutants by activated carbon as compiled by EPA. In the aggregate these data indicate that very low effluent levels could be attained from any raw waste by use of multiple adsorption stages. This is characteristic of adsorption processes.

As noted above, activated carbon adsorption preliminary treatment is relied upon for control of hexachlorobenzene in the primary rare earth metals subcategory. This treatment technology was selected because discharges from that subcategory do not appear to be effectively controlled by existing treatment. It is not demonstrated in this or any other application within the primary rare earth metals subcategory. Activated carbon technology and performance is, therefore transferred from the iron and steel manufacturing category because the raw wastewaters in this category are similar to those of the iron and steel category. Because the performance of an activated carbon is determined by the amount of carbon present, in practice it is applicable to wastewaters of various characteristics.

The treatment performance used for activated carbon to calculate mass limitations for hexachlorobenzene is based on the quantification limit of 0.010 mg/l. This concentration is achievable, assuming sufficient carbon is used in the column. In an activated carbon column effluent concentration is determined only by the amount of carbon present and a suitable contact time. Therefore, the 0.010 mg/l is achievable by assuming a conservative ratio for carbon exhaustion (usage). The exhaustion rate used by the Agency was based on laboratory carbon adsorption tests using wastewater from the nonferrous metals manufacturing category.

Carbon adsorption systems have been demonstrated to be practical and economical in reducing COD, BOD, and related parameters in secondary municipal and industrial wastewaters; in removing toxic or refractory organics from isolated industrial wastewaters; in removing and recovering certain organics from wastewaters; and in removing and some times recovering selected inorganic chemicals from aqueous wastes. Carbon adsorption is a viable and economic process for organic waste streams containing up to 1 to 5 percent of refractory or toxic organics. Its applicability for removal of inorganics such as metals has been demonstrated.

The pollutants specifically limited under BAT are hexachlorobenzene, chromium, lead, and nickel.

Implementation of the BAT limitations will remove from current discharges annually an estimated 33.3 kg of toxic pollutants (32.5 kg of toxic organics and 0.8 kg of toxic metals) and 207 kg of total pollutants including 171 kg of suspended solids.

The costs data for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. The Agency has determined that BAT limitations for this subcategory are technically feasible and economically achievable.

Secondary Tantalum

EPA is promulgating BAT limitations for this subcategory based on lime precipitation and sedimentation with the addition of filtration. This is the same technology basis as was proposed.

The pollutants specifically limited under BAT are copper, lead, nickel, zinc and tantalum. Tantalum and the regulated toxic metals are considered as indicator pollutants to ensure proper operations of the technology and adequate removal of the unregulated toxic metal pollutants.

Implementation of the BAT limitations will remove annually from current discharges an estimated 26,273 kg of toxic metals, which is 4.8 kg of toxic metals more than the estimated BPT removal and 51,433 kg of total pollutants.

The costs for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. The Agency has determined that BAT limitations for this subcategory are technically feasible and economically achievable.

Secondary Tin

EPA is promulgating BAT limitations for this subcategory based on preliminary treatment consisting of cyanide precipitation when required, and end-of-pipe treatment consisting of chemical precipitation and sedimentation, and polishing filtration. For the reasons discussed above at BPT, ammonia steam stripping which was included at proposal is not included in the final model treatment technology for BAT.

As discussed in BPT above, the pollutants specifically limited under BAT in building blocks related to hydrometallurgical tin recovery are cyanide, lead, tin, and fluoride. Tin and the regulated toxic metals are considered as indicator pollutants to ensure proper operations of the technology and adequate removel of the unregulated toxic metal pollutants. The pollutants specifically regulated in building blocks related to recovery of tin with pyrometallurgical processes are arsenic, lead, iron, and tin.

Implementation of the BAT limitations would remove annually from current discharges an estimated 713 kg of toxic metals and cyanide, which is 26 kg of toxic pollutants over the estimated BPT discharge. An additional 128 kg of fluoride is removed annually at BAT. The costs data for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. The Agency has determined that BAT limitations for this subcategory are technically feasible and economically achievable.

Primary and Secondary Titanium

EPA proposed Level A BAT limitations for titanium plants which do not practice electrolytic recovery of magnesium and which use vacuum distillation instead of leaching to purify titanium sponge as the final product based on lime precipitation, sedimentation, and oil skimming plus in-process wastewater flow reduction. Level B BAT limitations, proposed for all other titanium plants, were based on lime precipitation, sedimentation, and oil skimming pretreatment where required, plus flow reduction, and filtration. Flow reduction is based on 90 percent recycle of scrubber effluent through holding tanks and 90 percent recycle of casting contact cooling water through cooling towers. However, the Agency has decided to exclude from national regulations those facilities which do not practice electrolytic recovery of magnesium and which use vacuum distillation instead of leaching to purify titanium sponge as the final product because the amounts and toxicity of the pollutants in their discharge are very small and do not justify national regulations. Therefore, we no longer have two regulatory levels. Level B limitations are promulgated for all other facilities.

The pollutants specifically limited under BAT are chromium, lead, nickel, and titanium. Titanium and the regulated toxic metals are considered as indicator pollutants to ensure proper operations of the technology and adequate removal of the unregulated toxic metal pollutants.

Implementation of the BAT limitations would remove annually from current discharges an estimated 299 kg of toxic pollutants. Estimated capital cost for achieving proposed BAT is approximately $1,030,000, and annualized cost is approximately $585,000. The Agency has determined that BAT limitations for this subcategory are technically feasible and economically achievable.

Secondary Tungsten and Cobalt

EPA is promulgating BAT limitations for this subcategory based on lime precipitation and sedimentation, flow reduction, ammonia steam stripping plus filtration. In process wastewater reduction is part of the promulgated model technology for both BPT and BAT. Flow reductions are based on 90 percent recycle of scrubber effluent, which is the rate reported by the only existing plant with a scrubber. Since proposal information shows that this plant already practices extensive recycle the Agency has incorporated flow reduction into the technology basis for BPT and has decided not to require at BAT any additional flow reduction beyond that already practiced.

The pollutants specifically limited under BAT are copper, nickel, cobalt, tungsten and ammonia. Cobalt, tungsten and the regulated toxic metals are considered as indicator pollutants to ensure proper operations of the technology and adequate removal of the unregulated toxic metal pollutants.

Implementation of the BAT limitations will remove from current discharges annually an estimated 150,700 kg of toxic pollutants and 483,500 kg of total pollutants.

The costs for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. The Agency has determined that BAT limitations for this subcategory are technically feasible and economically achievable.

Secondary Uranium

EPA is promulgating BAT limitations for this subcategory based on lime precipitation and sedimentation plus in-process wastewater reduction and filtration. This is the same as at proposal. Flow reductions are based on 50 percent recycle of laundry wastewater and 90 percent recycle of floor wash. As discussed in the March 18, 1985 Notice of Availability and this Preamble, EPA is making changes to building blocks and flows in this subcategory as a result of post proposal sampling of two plants in the subcategory. For the reasons discussed at BPT above, ammonia steam stripping which was included at proposal is not part of the final model treatment technology for BAT.

The pollutants specifically limited under BAT are chromium, copper, nickel, and fluoride. Uranium and ammonia are not specifically limited in this final rule for the reasons discussed at BPT above.

Implementation of the BAT limitations will remove from current discharges annually an estimated 126 kg of toxic metals and 5,408 kg of total pollutants. Estimated capital cost for achieving the final BAT is $87,972, and annualized cost is $106,678 (1982 dollars). The Agency has determined that BAT limitations for this subcategory are technically feasible and economically achievable.

Primary Zirconium and Hafnium

EPA proposed Level A BAT limitations for plants which only produce zirconium or zirconium-nickel alloys by magnesium reduction of zirconium dioxide (ZrO_2) based on barium chloride coprecipitation, cyanide precipitation, ammonia steam stripping and chemical precipitation and sedimentation plus in-process wastewater flow reduction. Proposed Level B limitations were to apply to all other plants in the subcategory. The proposed Level B BAT limitations were based on barium chloride coprecipitation, cyanide precipitation, ammonia steam stripping and chemical precipitation and sedimentation plus flow reduction, and filtration.

The Agency has decided to exclude plants which only produce zirconium or zirconium-nickel alloys by magnesium reduction of zirconium dioxide from national regulations because there currently are no Level A discharging plants and the amounts and toxicity of discharges is so small that it does not justify developing national regulations. Therefore, we are no longer promulgating a two tier regulation. The Agency is promulgating regulations based on the Level B model technology.

The achievable concentration for ammonia steam stripping is based on iron and steel manufacturing category data. Flow reductions are based on 90 percent recycle of scrubber effluent. For the reasons discussed at BPT above, barium chloride coprecipitation for removal of radium 226 is not included in the final BAT model treatment technology. Also for the reasons discussed at BPT above, the pollutants radium 226, zirconium, and hafnium are not specifically regulated under BAT. However, a permit writer may choose to regulate the pollutants on a case by case basis. The technology and its effectiveness is discussed in Section VII of the General Development Document.

The pollutants specifically limited under BAT are chromium, cyanide, lead, nickel, and ammonia.

The costs and specific removal data for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. The Agency has determined that BAT limitations for this subcategory are technically feasible and economically achievable.

NSPS

EPA is promulgating NSPS for the nonferrous metals manufacturing category based in part on flow reduction and end-of-pipe treatment which consists of lime precipitation, settling and filtration. Also included in the technology basis, where necessary, is preliminary treatment consisting of oil skimming, ammonia steam or air stripping, cyanide precipitation, iron coprecipitation, and sulfide precipitation, and polishing treatment consisting of activated carbon adsorption, and ion exchange.

NSPS for all except two subcategories are equivalent to the BAT requirements, therefore the Agency has determined that there will be no barrier to entry for new sources in those subcategories. In fact, the new sources can design for efficient process water use and maximize wastewater reduction, thereby reducing the size (and in turn the cost) of pollution control equipment. Therefore, such equipment may actually be less costly to install and operate in comparison to retrofit at existing plants.

The two subcategories for which NSPS are more stringent than BAT requirements are primary and secondary titanium and secondary mercury. We have evaluated the costs associated with NSPS in each of these subcategories. These costs will not pose a barrier to entry by new sources.

The promulgated NSPS for each subcategory is discussed below. Where NSPS equals BAT, we are transferring the technology basis and treatment effectiveness for the same reasons discussed above under BAT.

We are transferring lime precipitation and sedimentation technology and performance for the secondary indium, secondary mercury and secondary nickel subcategories from aluminum forming, copper forming, coil coating, battery manufacturing and porcelain enameling plants. This technology is not demonstrated on nonferrous metals manufacturing phase II process wastewater discharges in these subcategories. While lime precipitation and sedimentation is not demonstrated in these subcategories, we believe that it is transferable because of its widespread demonstration in this (the nonferrous metals manufacturing) category and by the categories considered in the CMDB. The raw wastewater characteristics of the secondary indium, secondary mercury and secondary nickel subcategories are similar to those found in this category. Likewise, the raw wastewater characteristics of these phase II subcategories are similar to those for the plants in the combined metals data base. We believe that the technology when applied to wastewater in these phase II subcategories will achieve the same effluent concentration as plants in the CMDB.

We are transferring filtration technology for the secondary mercury subcategory from one nonferrous metals manufacturing phase I plant and two porcelain enameling plants. While filtration is not demonstrated in this subcategory, we believe that it is transferrable because of its demonstration in this category. The raw wastewater characteristics of the secondary mercury subcategory are similar to those found in the other subcategories in the nonferrous metals manufacturing category. Likewise, the raw wastewater characteristics of this phase II subcategory are similar to those for plants in the data base used for filtration performance (see Section V A of this preamble). We believe that this technology when applied to wastewaters in this phase II subcategory will achieve the same effluent concentrations as the plants used to establish filtration performance.

In developing NSPS, the Agency considered the amount of water used per unit of production for each wastewater stream. Most of the new source regulatory flow allowances are equivalent to BAT allowances. The exception is in the primary and secondary titanium subcategory. In this subcategory the NSPS flows for four subdivisions is zero. As discussed above, the BAT requirements for existing sources in the primary and secondary titanium subcategory do not include additional in-process controls above BPT requirements. However, opportunities to achieve further flow reduction of process wastewater do currently exist for some process waste steams. Therefore, the new source standards for this subcategory are based on the application of additional flow reduction technologies on a number of process wastewater streams. New sources would not incur expenses associated with retrofitting these additional flow reduction technologies and would have the opportunity to install a treatment system which is designed to handle the reduced flow. The Agency therefore concludes that the primary and secondary titanium subcategory new source standards will not pose a barrier to entry.

NSPS model technology for secondary mercury is based on lime, settle and filter. A new source is able to design the treatment system to handle the new source flow without the expense of retrofitting flow reduction and treatment equipment into the facility. The cost of a filter for new sources is expected to be less than one percent of estimated revenues for a new source. Therefore, the Agency does not expect NSPS to pose a barrier to entry for new sources.

EPA is promulgating NSPS in the primary and secondary germanium and gallium, secondary indium and secondary nickel subcategories based on lime and settle treatment. These NSPS are equivalent to the BAT limitations. As discussed below, the Agency has decided not to include filters as part of the NSPS model technology for these subcategories as had been proposed. For each subcategory addressed below, the technology relied upon represents the best demonstrated technology for that subcategory.

The pollutants selected for regulation are the same as have been selected for regulation at BAT plus oil and grease, TSS, and pH for all subcategories.

Primary Antimony

EPA is promulgating NSPS equal to BAT. The technology basis for NSPS is more stringent than proposed for reasons discussed above. Our review of the subcategory indicates that no new demonstrated technologies that improve on BAT technology exist. We do not believe that new plants could achieve any flow reduction beyond the allowances for BAT. Because NSPS is equal to BAT we believe that the NSPS will not pose a barrier to the entry of new plants into this subcategory.

Bauxite Refining

EPA is not altering the promulgated NSPS for this subcategory for the same reasons discussed above.

Primary Berylium

EPA is promulgating NSPS equal to BAT. The technology basis for NSPS is more stringent than proposed for reasons discussed above. Our review of the subcategory indicates that no new demonstrated technologies that improve on BAT technology exist. We do not believe that new plants could achieve any flow reduction beyond the allowances for BAT. Because NSPS is equal to BAT we believe that the NSPS will not have a detrimental impact on the entry of new plants into this subcategory.

Primary Boron

EPA is not promulgating NSPS effluent limitations guidelines and standards for this subcategory. We had proposed NSPS based on lime precipitation and sedimentation.

As discussed above, EPA does not believe that any new boron plants will be built except in arid areas and therefore there will not be any new discharging plants. For this reason we are excluding from national regulations this subcategory.

Primary Cesium and Rubidium

EPA is not promulgating NSPS effluent limitations guidelines and standards for this subcategory. We had proposed NSPS based on lime precipitation, sedimentation and filtration. This technology was estimated to remove 0.35 kg/yr of pollutants from raw wastewater discharges estimated using a model plant, including 0.025 kg/yr of toxic pollutants. The cost data for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. The Agency believes that the costs involved do not warrant national regulations of this subcategory.

Primary and Secondary Germanium and Gallium

The proposed NSPS model technology was lime precipitation, sedimentation and filtration. This technology was estimated to remove 35,030 kg/yr of pollutants from raw wastewater discharges, including 573 kg/yr of toxic pollutants. The cost data for this subcategory are not presented here because the data on which they are based has been claimed confidential. EPA is promulgating NSPS equal to BAT. For the reasons discussed at BAT, the Agency is not including filtrations in the technology basis for this level of regulations in this subcategory. We do not believe that new plants could achieve any flow reduction beyond the allowances for BAT. Because NSPS is equal to BAT we believe that the NSPS will not have a detrimental impact on the entry of new plants into this subcategory.

Secondary Indium

EPA is promulgating NSPS for the secondary indium subcategory based on lime precipitation and sedimentation, the same model technology as PSES. The proposed NSPS model technology was lime precipitation, sedimentation and filtration. This technology was estimated to remove 5,190 kg/yr of pollutants from raw wastewater discharges, including 586 kg/yr of toxic pollutants. The addition of a filter to the lime and settle treatment would only remove an additional 0.2 kg/yr of toxic pollutants. The Agency believes that the costs involved do not warrant selection of filtration as part of the BAT model technology. The pollutants and pollutant parameters specifically limited under NSPS are cadmium, lead, zinc, indium, total suspended solids and pH.

The costs for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. We believe the NSPS is economically achievable, and will not pose a barrier to entry of new plants into this subcategory.

Secondary Mercury

EPA is promulgating NSPS for this subcategory based on lime precipitation, sedimentation, and filtration. This is the same technology basis as was proposed. This technology is fully demonstrated in many nonferrous metals manufacturing subcategories and is expected to perform at the same level in this subcategory.

The pollutants specifically limited under NSPS are lead, mercury, TSS, and pH.

We believe the NSPS is economically achievable, and will not pose a barrier to entry of new plants into this subcategory.

Primary Molybdenum and Rhenium

EPA is promulgating NSPS limitations equal to BAT. This technology is different than that relied upon at proposal for reasons discussed above. Our review of the subcategory indicates that no new demonstrated technologies that improve on BAT technology exist. We do not believe that new plants could achieve any flow reduction beyond the allowances for BAT. Because NSPS is equal to BAT we believe that the NSPS will not have a detrimental impact on the entry of new plants into this subcategory.

Metallurgical Acid Plants

As discussed above, EPA is expanding the applicability of the existing NSPS regulation for the metallurgical acid plants subcategory to include acid plants associated with primary molybdenum roasting operations. We are promulgating NSPS limitations equal to BAT. This technology is different than that relied upon at proposal for reasons discussed above. We do not believe that this expanded applicability will have a detrimental impact on the entry of new plants into this subcategory.

Secondary Molybdenum and Vanadium

EPA is promulgating NSPS limitations equal to BAT. This technology is less stringent than proposed for reasons discussed above. We do not believe that new plants could acheive any flow reduction beyond the allowances for BAT. Because NSPS is equal to BAT we believe that the NSPS will not pose a barrier to the entry of new plants into this subcategory.

Primary Nickel and Cobalt

EPA is promulgating NSPS limitations equal to BAT. This is the same technology basis as was proposed. Our review of the subcategory indicates that no new demonstrated technologies that improve on BAT technology exist. We do not believe that new plants could achieve any flow reduction beyond the allowances for BAT. Because NSPS is equal to BAT we believe that the NSPS will not pose a barrier to the entry of new plants into this subcategory.

Secondary Nickel

EPA is promulgating NSPS limitations based on lime precipitation and sedimentation, the same model technology as PSES. The proposed NSPS model technology was lime precipitation, sedimentation, and filtration. This technology was 747 kg/yr of pollutants from raw discharges, including 81 kg/yr of toxic pollutants. The installation of this technology was estimated to cost $1,925,000 in capital investment and $690,000 annually above equipment in place (1982 dollars). The addition of a filter to the lime and settle treatment would cost $300,000 in capital investment and $277 annually but would only remove 1 kg of toxic pollutants annually. The Agency believes that given all these factors, the costs involved do not warrant selection of filtration as part of the BAT model technology. We do not believe that new plants could achieve any flow reduction beyond the allowances for BAT. Because NSPS is equal to PSES we believe that the NSPS will not pose a barrier to the entry of new plants into this subcategory.

Primary Precious Metals and Mercury

EPA is promulgating NSPS limitations equal to BAT. This is the same technology basis as relied upon at proposal. Our review of the subcategory indicates that no new demonstrated technologies that improve on BAT technology exist. We do not believe that new plants could achieve any flow reduction beyond the allowances for BAT. Because NSPS is equal to BAT we believe that the NSPS will not have a detrimental impact on the entry of new plants into this subcategory.

Secondary Precious Metals

EPA is promulgating NSPS limitations equal to BAT. Ion exchange is being added to the model technology for reasons discussed above. We had proposed zero discharge for furnace air pollution control based on dry scrubbing. However, information submitted in comments indicated that dry scrubbing may not be feasible for this subcategory. Therefore, we have decided to provide an allowance for furnance air pollution control equivalent to the BAT allowance. We believe that the NSPS is economically achievable, and will not pose a barrier to entry of new plants into this subcategory.

Primary Rare Earth Metals

EPA is promulgating NSPS limitations equal to BAT. This is the same technology basis as relied upon at proposal. Our review of the subcategory indicates that no new demonstrated technologies that improve on BAT technology exist. We do not believe that new plants could achieve any flow reduction beyond the allowances for BAT. Because NSPS is equal to BAT we believe that the NSPS will not have a detrimental impact on the entry of new plants into this subcategory.

Secondary Tantalum

EPA is promulgating NSPS limitations equal to BAT. This is the same technology basis as was proposed. Our review of the subcategory indicates that no new demonstrated technologies that improve on BAT technology exist. We do not believe that new plants could achieve any flow reduction beyond the allowances for BAT. Because NSPS is equal to BAT we believe that the NSPS will not pose a barrier to the entry of new plants into this subcategory.

Secondary Tin

EPA is promulgating NSPS limitations equal to BAT. This technology is less stringent than proposed for reasons discussed above. Because NSPS is equal to BAT we believe that the NSPS will not pose a barrier to the entry of new plants into this subcategory.

Primary and Secondary Titanium

EPA is promulgating NSPS limitations equal to BAT with the addition of flow reduction for four streams. Zero discharge is promulgated for chip crushing, sponge crushing snd screening, and scrap milling wet air pollution control wastewater based on dry scrubbing. Zero discharge is also promulgated for chlorine liquefaction wet air pollution control based on by-product recovery of scrubber liquor as hypochlorous acid. Cost for dry scrubbing air pollution control in a new facility is no greater than the cost for wet scrubbing which was the basis for BAT cost estimates. This is the same technology basis as proposed. We believe that the NSPS is economically achievable and will not pose a barrier to the entry of new plants into this subcategory.

Secondary Tungsten and Cobalt

EPA is promulgating NSPS limitations equal to BAT. This is the same technology basis as proposed. Our review of the subcategory indicates that no new demonstrated technologies that improve on BAT technology exist. We do not believe that new plants could achieve any flow reduction beyond the allowances for BAT. Because NSPS is equal to BAT we believe that the NSPS will not pose a barrier to the entry of new plants into this subcategory.

Secondary Uranium

EPA is promulgating NSPS limitations equal to BAT. This technology is less stringent than proposed for reasons discussed above. Our review of the subcategory indicates that no new demonstrated technologies that improve on BAT technology exist. We do not believe that new plants could achieve any flow reduction beyond the allowances for BAT. Because NSPS is equal to BAT we believe that the NSPS will not pose a barrier to the entry of new plants into this subcategory.

Primary Zirconium and Hafnium

EPA is promulgating NSPS limitations equal to BAT. The same exclusions discussed under BAT apply to NSPS. Our review of the subcategory indicates that no new demonstrated technologies that improve on BAT technology exist. We do not believe that new plants could achieve any flow reduction beyond the allowances for BAT. Because NSPS is equal to BAT we believe that the NSPS will not pose a barrier to the entry of new plants into this subcategory.

PSES

Section 307(b) of the Act requires EPA to promulgate pretreatment standards for existing sources (PSES) to prevent the discharge of pollutants which pass through, interfere with, or are otherwise incompatible with the operation of POTW. These standards must be achieved within three years of promulgation. The legislative history of the 1977 Act indicates that pretreatment standards are to be technology based, generally analogous to BAT for direct dischargers. (Conference Report 95-830 at 87; Reprinted in Comm. on Environmental and Public Works, 95th Cong. 2d Sess., A Legislative History of the Clean Water Act of 1977, Vol. 3 at 272.)

Before promulgating pretreatment standards, the Agency examined whether the pollutants discharged by the industry pass through the POTW or interfere with the POTW operation or its chosen sludge disposal practices. In determining whether pollutants pass through, the Agency compares the percentage of a pollutant removed by a well operated POTW, achieving secondary treatment, with the percentage removed by direct dischargers applying the best available technology economically achievable. A pollutant is deemed to pass through the POTW when the average percentage removed nationwide by a well-operated POTW meeting secondary treatment requirements, is less than the percentage removed by direct dischargers complying with BAT level effluent limitations guidelines for that pollutant. (See generally, 46 FR 9415-16 (January 28, 1981) and 49 FR 26388 (June 27, 1984.)

The Agency is promulgating PSES for the nonferrous metals manufacturing phase II category on the same technology basis as BAT. The Agency has concluded that the metallic pollutants cobalt, gold, indium, iron, molybdenum, palladium, platinum, tantalum, tin, titanium, and tungsten, as well as the pollutants ammonia, and fluoride pass through the POTW. A study of 40 well-operated POTW with biological treatment that are meeting secondary treatment criteria showed that regulated metals are typically removed at rates varying from 20 to 70 percent. POTWs with only primary treatment have even lower rates of removal. In contrast, BAT level treatment by nonferrous metals manufacturing phase II industrial facilities can achieve removals of these pollutants of approximately 90 percent. Thus it is evident that metals from this category do pass through POTWs. Section XII of the Development Document compares the percent of pollutant remaining after treatment by a well-operated POTW with the percent removed by BAT level treatment for each pollutant regulated in this category. Many of the pollutant regulated in this category. Many of the pollutants present in nonferrous metals manufacturing waste streams, at sufficiently high concentrations, can also inhibit biodegradation in POTW operations. In addition, a high concentration of toxic pollutants in the sludge can limit POTW use of sludge management alternatives, including the beneficial use of sludges on agricultural lands.

EPA is promulgating mass-based PSES for eight of the 19 discharging subcategories to assure that the effluent reduction benefits associated with flow reductions in those subcategories are realized.

The PSES promulgated today are equivalent to the BAT effluent limitations guidelines in all subcategories where PSES is being promulgated. PSES for the primary and secondary germanium and gallium, secondary indium and secondary nickel subcategories is promulgated based on the model end-of-pipe treatment technology of lime, and settle. The Agency has decided not to include a filter in the model PSES technology for these subcategories for the same reasons discussed at NSPS above. We are transferring lime precipitation and sedimentation technology and its performance for the secondary indium and secondary nickel subcategories from aluminum forming, copper forming, coil coating, battery manufacturing and porcelain enameling plants. This technology is not demonstrated in existing plants in these subcategories. While lime precipitation and sedimentation is not demonstrated in these subcategories, we believe that it is transferrable because of its widespread demonstration in this category. The raw wastewater characteristics of primary and secondary germanium and gallium, secondary indium and secondary nickel subcategories are similar to those found in category. Likewise, the raw wastewater characteristics of these phase II subcategories are similar to those for plants in the CMDB. We believe that the technology when applied to wastewater in this phase II subcategories will achieve the same effluent concentrations as plants in the CMDB.

We are transferring other technologies as discussed in BAT above. The Agency has considered the time for compliance for PSES. Few of the indirect discharge nonferrous metals phase II plants have installed and are properly operating the treatment technology for PSES. Many plants in this and other industries will be installing the treatment equipment suggested as model technologies for this regulation and this may result in delays in engineering, ordering, installing, and operating this equipment. For these reasons, the Agency has decided to establish the PSES compliance date for all facilities at three years after promulgation of this regulation.

For each of the subcategories where PSES is being promulgated, the Agency has determined that PSES is economically achievable and will not result in adverse economic impacts.

Primary Antimony

EPA is not promulgating PSES limitations for the primary antimony subcategory because there are no existing indirect dischargers.

Bauxite Refining.

EPA is not promulgating PSES limitations for the bauxite refining subcategory because there are no existing indirect dischargers.

Primary Beryllium

EPA is not promulgating pretreatment standards for existing sources for the primary beryllium subcategory since there are no indirect dischargers.

Primary and Secondary Germanium and Gallium

EPA proposed two levels of PSES for this subcategory. Level A, based on lime precipitation and sedimentation applied to plants which only reduce germanium dioxide to metal and practice zone refining and acid washing and rinsing. These plants only have one waste stream—acid wash and rinse water. Level B, based on lime precipitation, sedimentation, and filtration applied to all other plants in the subcategory. As discussed above EPA has reevaluated this two tier approach and concluded that filtration removes only a very small amount of pollutants and is not warranted for this subcategory. Therefore, we are promulgating PSES limitations for all plants in the subcategory based on lime and settle treatment for the same reasons discussed above.

The pollutants controlled at PSES are the same as those controlled at BAT.

We are promulgating PSES to prevent pass-through of arsenic, lead, zinc and fluoride. These pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 33 percent while the BAT technology removes approximately 87 percent.

Implementation of the PSES limitations would remove annually from raw discharge estimated using a model plant an estimated 34,930 kg of pollutants including 564 kg of toxic pollutants.

The costs for this subcategory not presented here because the data on which they are based has been claimed to be confidential. The Agency has determined that PSES are economically achievable and will not result in adverse economic impacts.

Secondary Indium

EPA is promulgating PSES limitations for this subcategory based on lime precipitation and sedimentation technology. This is the same technology basis as was proposed. The pollutants specifically regulated under PSES are cadmium, lead, zinc, and indium. It is necessary to promulgate PSES to prevent pass-through of cadmium, lead, zinc and indium. The toxic pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 38 percent while this BAT level technology removes approximately 99 percent.

Implementation of the PSES limitations would remove annually from current discharges an estimated 586 kg of toxic metals and 288 kg of indium. Estimated capital and annual costs required to achieve these limitations are $17,325 and $25,380, respectively. The Agency has determined that PSES is economically achievable and will not result in adverse economic impacts.

Secondary Mercury

EPA is not promulgating pretreatment standards for existing sources for the secondary mercury subcategory since there are no existing indirect dischargers.

Primary Molybdenum and Rhenium

EPA is not promulgating pretreatment standards for existing sources for the primary molybdenum and rhenium subcategory since there are no existing indirect dischargers.

Metallurgical Acid Plants

EPA is not expanding the applicability of the existing pretreatment standards for this subcategory to molybdenum acid plants because there are no existing indirect dischargers.

Secondary Molybdenum and Vanadium

EPA is not promulgating pretreatment standards for existing sources for the secondary molybdenum and vanadium subcategory since there are no existing indirect dischargers.

Primary Nickel and Cobalt

EPA is not promulgating pretreatment standards for existing sources for the primary nickel and cobalt subcategory since there are no existing indirect dischargers.

Secondary Nickel

EPA is promulgating PSES for this subcategory based on chemical precipitation and sedimentation. Filtration has been proposed as part of the model treatment technology for acid reclaim leaching filtrate and acid reclaim leaching filter backwash, but not for slag reclaim tailings. EPA has now decided not to rely on filters because filtration would only remove an additional 1 kg/yr of toxic pollutants. As discussed above, the Agency has determined that filtration is not warranted. The pollutants specifically regulated under PSES are chromium, copper and nickel. We are promulgating PSES to prevent pass-through of chromium, copper, and nickel. These toxic pollutants are removed by a well operated POTW at an average of 32 percent while PSES technology removes approximately 84 percent.

Implementation of the PSES limitations would remove annually an estimated 1,624 kg of toxic metals. We estimate a capital cost of $320,000 and an annualized cost of $161,233 to achieve PSES. The Agency has determined that PSES are economically achievable and will not result in adverse economic impacts.

Primary Precious Metals and Mercury

EPA is not promulgating pretreatment standards for existing sources for the primary precious metals and mercury subcategory because there are no existing indirect dischargers.

Secondary Precious Metals

EPA is promulgating PSES equal to BAT for this subcategory. For the reasons discussed above, this technology is different than that relied upon at proposal. It is necessary to promulgate this PSES to prevent pass-through of copper, cyanide, zinc, ammonia, gold, platinum and palladium. The toxic pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 32 percent while BAT level technology removes approximately 99 percent.

The technology basis for PSES thus is hydroxide precipitation and sedimentation, ammonia steam stripping, cyanide precipitation, wastewater flow reduction, and filtration plus ion exchange polishing. The achievable concentration for ammonia steam stripping is based on iron and steel manufacturing category data, as explained in the discussion of BPT and BAT for this subcategory. Flow reduction is based on the same recycle of scrubber effluent that is the flow basis of BAT. Recycle is practiced by 21 of the 29 existing plants in the subcategory.

Implementation of the PSES limitations would remove annually from raw discharges an estimated 110,300 kg of toxic pollutants including 866 kg of cyanide, and an estimated 10,530 kg of ammonia. Capital cost for achieving PSES is $1,734,265 and annualized cost of $1,059,367. The Agency has determined that PSES are economically achievable and will not result in adverse economic impacts.

Primary Rare Earth Metals

EPA is promulgating PSES equal to BAT for this subcategory. It is necessary to promulgate PSES to prevent pass-through of hexachlorobenzene, chromium, lead, and nickel. These toxic pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 28 percent while BAT technology removes approximately 74 percent.

The technology basis for PSES is lime precipitation and sedimentation, wastewater flow reduction, filtration, and activated carbon. Flow reduction is based on 90 percent recycle of scrubber effluent that is the flow basis of BAT. Filtration is an effluent polishing step that removes additional pollutants. This is the same technology basis as was proposed.

Implementation of the PSES limitations would remove annually an estimated 10.9 kg toxic pollutants.

The costs for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. The Agency has determined that the PSES is economically achievable and is not expected to result in adverse economic impacts.

Secondary Tantalum

EPA is not promulgating pretreatment standards for existing sources for the secondary tantalum subcategory since there are no existing indirect dischargers.

Secondary Tin

EPA is promulgating PSES equal to BAT for this subcategory. It is necessary to promulgate PSES to prevent pass-through of arsenic, cyanide, lead, iron, tin, and fluoride. The three toxic pollutants and fluoride are removed by a well-operated POTW achieving secondary treatment at an average of 17 percent while BAT technology removes approximately 97 percent.

The technology basis for PSES is chemical precipitation and sedimentation, followed by filtration with preliminary treatment consisting of cyanide precipitation. For the reasons discussed above this technology is less stringent than proposed.

Implementation of the promulgated PSES limitations would remove annually an estimated 167 kg of toxic pollutants, 6,227 kg of tin, 20 kg of cyanide and 25,105 kg fluoride over estimated current discharge. Capital costs to achieve PSES limitations are estimated to be $160,187 while annual costs are expected to be $50,044. The Agency has determined that PSES are economically achievable and will not result in adverse economic impacts.

Primary and Secondary Titanium

EPA is promulgating PSES equal to BAT for this subcategory. The exclusions discussed under BAT apply to PSES. It is necessary to establish PSES to avoid pass-through of chromium, lead, nickel, and titanium. The three toxic pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 14 percent while BAT technology removes approximately 76 percent. This technology is the same as that proposed.

Implementation of the promulgated PSES limitations would remove annually from current discharges an estimated 1.7 kg of toxic pollutants and 147 kg of titanium.

The costs for this subcategory are not presented here because the data on which they are based has been claimed to be confidential. The Agency has determined that PSES are economically achievable and will not result in adverse economic impacts.

Secondary Tungsten and Cobalt

EPA is promulgating PSES equal to BAT for this subcategory. At proposal this subcategory had been excluded from PSES because we believed that there were no existing indirect dischargers. However, after proposal we learned of the existence of one indirect discharging facility in the subcategory. We sent a dcp to the facility in question and considered the flow production and technology in place information it provided in establishing these standards. It is necessary to propose PSES to avoid pass-through of copper, nickel, cobalt, tungsten and ammonia. The two toxic pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 26 percent while BAT technology removes approximately 97 percent.

Implementation of the PSES limitations would remove annually an estimated 13 kg of toxic pollutants. Capital and annual costs expected to be incurred by this plant to achieve PSES are $16,293 and $8,765, respectively. The Agency has determined that PSES are economically achievable and will not result in advance economic impacts.

Secondary Uranium

EPA is not promulgating pretreatment standards for existing sources for the secondary uranium subcategory since there are no existing indirect dischargers.

Primary Zirconium and Hafnium

EPA is not promulgating pretreatment standards for existing sources for the primary zirconium and hafnium subcategory. We had proposed PSES for this subcategory in a two tier regulatory approach. However, we are excluding from PSES limitations plants which only reduce zirconium or zirconium-nickel alloys from zirconium dioxide with magnesium or hydrogen. Since the only indirect discharger in the subcategory complies with this requirement, we have decided not to establish PSES for this subcategory. However, this facility will still be subject to general pretreatment standards under 40 CFR 403.

PSNS

The Agency is promulgating PSNS for 20 subcategories to assure that the identified flow reduction and end-of-pipe technologies are considered in new plant designs. For the following subcategories primary antimony, primary beryllium, primary molybdenum and rhenium, metallurgical acid plants, secondary molybdenum and vanadium, primary nickel and cobalt, primary precious metals and mercury, secondary tantalum, and secondary uranium subcategories for which BAT and NSPS are established, we are basing PSNS on BAT and NSPS. For the remainder, we are basing PSNS on PSES.

The technology basis for the PSNS is identical to NSPS and is being established on the basis discussed above for NSPS. The flow allowances are the same as NSPS and toxic and nonconventional pollutants regulated for PSNS are the same as those for PSES. As discussed under PSES, pass through of the regulated pollutants will occur without adequate pretreatment and, therefore, pretreatment standards are required. We know of no economically feasible, demonstrated technology that removes significantly more pollutants than the technologies selected. The only subcategory which has more stringent requirements for new sources than for existing sources is secondary mercury. We have evaluated the cost associated with PSNS for the secondary mercury subcategory as discussed above, and find that these costs will not pose a barrier to entry by new sources in this subcategory.

Primary Antimony

EPA is promulgating PSNS equivalent to NSPS and BAT. The technology basis proposal is more stringent than for reasons discussed above. It is necessary to propose PSNS to prevent pass-through of toxic metals. These metals are removed by a well operated POTW achieving secondary treatment at an average of 61 percent. PSNS technology removes these pollutants at an average of 98 percent. We know of no economically feasible, demonstrated technology that is better than BAT level technology. No additional flow reduction for new sources is feasible beyond the allowances for BAT. We believe that the PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Bauxite Refining

EPA is not altering the promulgated PSNS limitations since it is unlikely that any new bauxite sources will be constructed as indirect dischargers.

Primary Beryllium

The technology basis for promulgated PSNS is identical to NSPS and BAT. The changes from proposal are discussed above. It is necessary to promulgate PSNS to prevent pass-through of beryllium, chromium, copper, cyanide and fluoride. These toxic pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 41 percent while BAT technology removes approximately 93 percent. We know of no economically feasible, demonstrated technology that is better than BAT technology. The PSNS flow allowances are based on minimization of process wastewater wherever possible through the use of holding tanks for wet scrubbing wastewater. The discharges are based on 90 percent recycle of this waste stream (see Section IX—Recycle of Wet Scrubber and Contact Cooling Water). No additional flow reduction for new sources is feasible. Because PSNS does not include any additional costs compared to NSPS and BAT, we do not believe it will prevent entry of new plants into this subcategory.

Primary Boron

EPA is not promulgating PSNS for this subcategory for the same reasons discussed for NSPS above.

Primary Cesium and Rubidium

EPA is not promulgating PSNS for this subcategory for the same reasons discussed for NSPS above.

Primary and Secondary Germanium and Gallium

EPA is promulgating PSNS equivalent to PSES, NSPS and BAT. The same changes discussed under BAT and NSPS apply to PSNS. The technology basis for promulgated PSNS is identical to NSPS, PSES and BAT. The same pollutants pass through as at PSES, for the same reasons.

We believe that the promulgated PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Secondary Indium

EPA is promulgating PSNS equal to NSPS. The technology basis for promulgated PSNS is identical to NSPS and is less stringent than proposed for the same reasons. The same pollutants pass through as at PSES, for the same reasons.

We believe that the promulgated PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory. Analysis of the approximate compliance costs expected to be incurred by a new plant was performed on a model basis and indicates minimal impact.

Secondary Mercury

EPA is promulgating PSNS equivalent to NSPS for this subcategory. This technology basis is the same as proposed. It is necessary to promulgate PSNS to prevent pass-through of lead and mercury. These toxic pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 59 percent, while PSNS level technology removes approximately 99 percent.

We believe that the promulgated PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory. Analysis of the approximate compliance costs expected to be incurred by a new plant was performed on a model basis and indicates minimal impact.

Primary Molybdenum and Rhenium

EPA is promulgating PSNS equal to NSPS and BAT for this subcategory. The technology basis is more stringnent than proposed for the same reasons discussed above. It is necessary to promulgate PSNS to prevent pass-through of arsenic, lead, nickel, selenium, molybdenum and ammonia. The toxic pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 13 percent, while the NSPS and BAT level technology removes approximately 79 percent.

We believe that the promulgated PSNS are achievable and that they are not a barrier to entry of new plants into this subcategory.

Metallurgical Acid Plants

We are expanding the applicability of the existing PSNS for metallurgical acid plants to include metallurgical acid plants associated with primary molybdenum roasters. The technology basis more stringent than proposed for reasons discussed above. It is necessary to promulgate PSNS to prevent pass-through of arsenic, cadmium, copper, lead, and zinc. These toxic pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 42 percent, while BAT level technology removes approximately 83 percent.

We believe that the promulgated PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Secondary Molybdenum and Vanadium

EPA is promulgating PSNS equal to NSPS and BAT for this subcategory. The technology basis differs from proposal for the same reasons discussed for BAT alone. It is necessary to promulgate PSNS to prevent pass-through of arsenic, lead, nickel, molybdenum and ammonia. The toxic pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 23 percent, while the NSPS and BAT level technology removes approximately 98 percent.

We believe that the promulgated PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Primary Nickel and Cobalt

EPA is promulgating PSNS equal to BAT and NSPS for this subcategory. This is the same technology basis as proposed. It is necessary to promulgate PSNS to prevent pass-through of copper, nickel, cobalt, and ammonia. The toxic pollutants are removed by a well-operated POTW at an average of 26 percent, while BAT technology removes approximately 58 percent. The technology basis for PSNS thus is lime precipitation and sedimentation, ammonia steam stripping, and filtration. The achievable concentration for ammonia steam stripping is based on iron and steel manufacturing category data, as explained in the discussion of BPT and BAT for this subcategory.

We believe that the promulgated PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Secondary Nickel

EPA is promulgating PSNS equivalent to NSPS and PSES. The technology basis is less stringent than proposed for the same reasons discussed above. The same pollutants pass through at PSNS as at PSES, for the same reasons. We know of no economically feasible, demonstrated technology that is better than PSES technology. The PSES flow allowances are based on minimization of process wastewater wherever possible.

We believe that the promulgated PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Primary Precious Metals and Mercury

EPA is promulgating PSNS equal to NSPS and BAT for this subcategory. The technology basis is more stringent than proposed for the same reasons discussed above. It is necessary to promulgate PSNS to prevent pass-through of lead, mercury, silver, and zinc. These toxic pollutants are removed by a well-operated POTW at an average of 62 percent, while the NSPS and BAT technology removes approximately 93 percent.

The technology basis for PSNS thus is lime precipitation and sedimentation, oil skimming, wastewater flow reduction and filtration. Flow reduction is based on 90 percent recycle of scrubber effluent that is the flow basis of BAT.

We believe that the promulgated PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Secondary Precious Metals

EPA is promulgating PSNS equivalent to NSPS, PSES and BAT. The technology basis for promulgated PSNS is identical to NSPS. This technology is more stringent than proposed for the same reasons discussed above. The same pollutants pass through at PSNS as at PSES, for the same reasons. We know of no economically feasible, demonstrated technology that is better than NSPS technology. The NSPS flow allowances are based on minimization of process wastewater wherever possible through the use of holding tanks to recycle wet scrubbing wastewater. The discharges are based on recycle of these waste streams.

We believe that the promulgated PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Primary Rare Earth Metals

EPA is promulgating PSNS equivalent to PSES, NSPS and BAT. The technology basis for PSNS is the same as was proposed and is identical to NSPS, PSES, and BAT. The same pollutants pass through at PSNS as at PSES, for the same reasons. We know of no economically feasible, demonstrated technology that is better than PSES technology. The PSNS flow allowances are equal to the BAT, NSPS and PSES flow allowances.

We believe that the PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Secondary Tantalum

EPA is promulgating PSNS equal to NSPS and BAT. This is the same technology basis as proposed. It is necessary to promulgate PSNS to prevent pass-through of copper, lead, nickel, zinc and tantalum. The four toxic pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 48 percent while BAT level technology removes approximately 99 percent.

We believe that the PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Secondary Tin

EPA is promulgating PSNS equivalent to PSES, NSPS and BAT. The technology basis for PSNS is identical to NSPS, PSES, and BAT and it is less stringent than proposed for reasons discussed above. The same pollutants pass through at PSNS as at PSES, for the same reasons. We know of no economically feasible, demonstrated technology that is better than PSES technology. The PSNS flow allowances are identical to the flow allowances for BAT, NSPS, and PSES.

We believe that the PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Primary and Secondary Titanium

EPA is promulgating PSNS equivalent to NSPS. The technology basis for PSNS is identical to NSPS for reasons discussed there. The same pollutants are regulated at PSNS as at PSES and they pass through at PSNS, for the same reasons as at PSES. The PSNS and NSPS flow allowances are based on minimization of process wastewater wherever possible through the use of cooling towers to recycle contact cooling water and holding tanks for wet scrubbing wastewater. The discharge allowance for pollutants is the same at PSES and NSPS. The discharges are based on 90 percent recycle of these waste streams. As in NSPS, flow reduction beyond BAT is for sponge crushing and screening wet air pollution control wastewater based on dry scrubbing.

We believe that the PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Secondary Tungsten and Cobalt

EPA is promulgating PSNS equal to NSPS and BAT for this subcategory. This is the same technology basis as proposed. It is necessary to promulgate PSNS to prevent pass-through of copper, nickel, cobalt, tungsten, and ammonia. The three toxic pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 26 percent, while the NSPS and BAT level technology removes approximately 97 percent.

The technology basis for PSNS thus is lime precipitation and sedimentation, ammonia steam stripping, and filtration. The achievable concentration for ammonia steam stripping is based on iron and steel manufacturing category data, as explained in the discussion of BPT and BAT for this subcategory.

We believe that the PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Secondary Uranium

EPA is promulgating PSNS equal to NSPS and BAT for this subcategory. This technology basis is less stringent than proposed for the same reasons discussed above. It is necessary to promulgate PSNS to prevent pass-through of chromium, copper, nickel, and fluoride. The toxic pollutants are removed by a well-operated POTW achieving secondary treatment at an average of 40 percent, while the NSPS and BAT level technology removes approximately 88 percent.

We believe that the PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

Primary Zirconium and Hafnium

EPA is promulgating PSNS equivalent to NSPS and BAT. The technology basis for PSNS is identical to NSPS and is less stringent than proposed for the same reasons. The same pollutants pass through as at PSES, for the same reasons. We know of no economically feasible, demonstrated technology that is better than PSES technology.

We believe that the PSNS are achievable, and that they are not a barrier to entry of new plants into this subcategory.

BCT. The Agency is not promulgating BCT effluent limitations guidelines at this time. EPA will issue BCT effluent limitations guidelines after the BCT methodology has been finalized. In the interim, permit writers should establish BCT discharge allowances for the conventional pollutants on the basis of best professional judgment.

VI. Economic Considerations

A. Analysis and Reports

The economic assessment of the regulation is presented in the "Economic Impact Analysis of Effluent Standards and Limitations for the Nonferrous Smelting and Refining Industry, Phase II," EPA. This report details the investment and annual costs for the industry and for each metal subcategory covered by the regulation. Compliance costs are based on engineering estimates of incremental capital requirements above the water pollution control equipment already in place. The report assesses the impact of effluent control costs associated with each regulatory option in terms of price changes, cost of production changes, plant closures and associated loss of employment, financial impacts and balance of trade effects.

In addition, EPA has conducted an analysis of the incremental removal cost per pound equivalent for each of the final technology based options. A pound equivalent is calculated by multiplying the number of pounds of pollutant discharged by a weighting factor for that pollutant. The weighting factor is equal to the water quality criterion for a standard pollutant (copper) divided by the water quality criterion for the pollutant being evaluated. The use of "pound equivalent" gives relatively more weight to removal of pollutants that are more toxic. Thus, for a given expenditure, the cost per pound equivalent removed would be lower when a highly toxic pollutant is removed than if a less toxic pollutant is removed. This analysis, which includes detailed descriptions of how all weighting factors were determined, is entitled "Cost Effectiveness Analysis of Proposed Effluent Standards and Limitations for the Nonferrous Metals Manufacturing Industry (Phase II)" and is included in the record for this rulemaking.

B. Costs and Economic Impacts

The Agency projects 73 "wet-process" manufacturing plants or production lines are covered by this regulation. Thirty four of these facilities discharge their wastewater directly into navigable waters, and 39 discharge into publicly owned treatment works (POTW). In addition, there are 70 other facilities which do not produce any wastewater, and therefore do not incur costs as a result of the regulation.

Total capital costs for the discharging plants as a result of this regulation are estimated to be $7.0 million, while total annual costs, including depreciation and interest, are estimated to be $7.3 million. These costs are expressed in 1982 dollars. The projected economic effect associated with these costs is one production line closure at the BPT level of control with an accompanying employment loss of 19 people. This is a small gold recovery operation in an integrated facility also covered by the recently promulgated Nonferrous Metals, Phase I Effluent Guidelines. Closure of this operation will have a negligible effect on aggregate secondary precious metals production. It has also been determined that two of the four discharging plants in the tin subcategory have incurred losses for the last two or three years of operation. Based on this information, the Agency believes it is likely the plants will cease production in the near future and thus considers them baseline closures. All other existing tin recovery operations are expected to remain viable after compliance with this regulation.

No further significant impacts are projected as a result of the regulation. Potential price increases (that is, in the event manufacturers are able to pass costs on to their customers) are expected to exceed 3.0 percent for only one subcategory, and balance of trade effects are minimal, notwithstanding the persistent overvaluation of the American dollar on foreign exchange markets. Effective annual compliance costs (i.e.: after-tax) are quite low for many plants. Other plants incur substantially higher costs, but compete in markets characterized by projections of strong demand and little reliance on imports. Thus it is believed these plants will be able to absorb these costs with little adverse impact. The analysis does indicate that some intermediate production processes in large integrated facilities may become unprofitable as a result of treatment costs incurred under this rulemaking. However, the Agency does not believe these production lines will be discontinued, since they are generally intermediate steps in larger operations that appear profitable overall. Hence, no significant production loss beyond that described above is expected to occur.

For purposes of this regulation, the Agency created 25 separate subcategories based on metal products produced. The economic analysis focuses on 19 of these subcategories. Five of the remaining six subcategories were excluded from national regulation under Paragraph 8 of the NRDC Consent Decree while the sixth, Bauxite Refining, is incurring no additional costs as a result of this regulation. The 19 subcategories are discussed in detail in the economic impact analysis document. Plant descriptions are provided along with market analyses of the metals products produced in each subcategory.

The methodology employed to determine economic impacts begins with a screening analysis to identify plants that will be significantly affected by the regulation. This consists of a comparison of a plant's estimated annual compliance costs to its projected revenues. If this ratio is found to exceed 1 percent, the plant is then subjected to a 2-step closure analysis: a net present value test and a liquidity test.

The net present value test is designed to assess the firm's long-term profitability. The viability of the plant is judged by a comparison of its cash flows over the entire compliance period to its current liquidation value. The liquidity test, on the other hand, assesses the firm's short-term solvency during the first five years of compliance. If estimated cash-flows over the five years are negative, the plant is cited as potentially insolvent and in danger of closure. Both tests require the estimation of plant revenues in future years in order to determine income and cash flows for those years. For some plants, this income is taken to be the average of income between 1978–82, a period which spanned a complete business cycle. Average product price over the period was used in conjunction with the average capacity utilization rate over the period to arrive at an estimate of total sales for the plant in a "normal" year. This figure was then used as the basis for the determination of average income which, minus compliance costs, served as the estimate of cash flow for the specific plant. This procedure was employed for plants whose performance has or is soon projected to recover significantly from the depressed conditions of 1982, the year for which data is available. The market for some metals has strengthened since then and domestic manufacturers have experienced increased production and earnings.

In most cases, however, the rapid recovery from the 81–82 recession projected at proposal has not occurred. Plants have continued to operate at levels well below capacity, earnings have suffered and market shares have been lost to overseas competitors aided by the strong U.S. dollar. For all but one of these plants, the total sales reported for the 1982 operating year were assumed to be "normal" and were employed to determine average income and cash flow. The only exception is a large, integrated facility with production lines included in three subcategories. EPA requested and received data from this plant concerning their production and earnings in 1984. The information was solicited primarily to assist EPA in its analysis of comments submitted by the plant after proposal. The Agency has employed these 1984 figures in its analysis of impacts for this facility.

Details concerning specific plants are available in the record of this final rulemaking. See also the Economic Impact Analysis document for subcategory discussions.

BPT: New BPT limitations are promulgated for 15 subcategories, with 63 plants incurring compliance costs. Investment costs are estimated to be $4.2 million and total annualized costs are $5.8 million. Closures projected to result from these costs include a secondary gold production process line in a secondary precious metals plant. This plant also produces secondary silver and therefore is integrated with the secondary silver subcategory in the Nonferrous Metals Phase I regulation. It was projected that compliance costs associated with the Phase I regulation would result in the closure of the secondary silver process line as well. The combined effects of the two regulations therefore is the closure of the entire facility and the associated loss of approximately 19 jobs. However, the loss of secondary gold/silver production capacity is minimal. The plant represents less than one-half of one percent of industry capacity for both metals. As noted in the economic impact report where applicable, several intermediate production lines within large, integrated facilities appeared unprofitable at BPT when analyzed independently. That is, the value of products produced by the operation is low relative to the estimated wastewater treatment cost implied by this regulation. EPA believes however that, in each case, the *overall* value of the plant's production justifies the continued operation of the intermediate production line. The products of these lines are vital to the facility's overall output. Hence, EPA does not project their closure. The overall impacts on all subcategories are small, with potential price changes (i.e., if manufacturers could pass compliance costs through to customers) ranging from less than 0.01 to 2.9 percent. No balance of trade effects are expected.

BAT: New BAT limitations are promulgated for 14 subcategories. Total investment costs to meet BPT and BAT are estimated to be $4.8 million and total annualized costs are $6.1 million. No additional closures or production loss beyond those expected at BPT are expected to result from these limitations. The price increases potentially associated with these costs are small, ranging from 0.01 to 3.0 percent and the limitations are considered economically achievable.

PSES: PSES is issued for 8 subcategories. The costs for this regulation are expected to be $2.4 million investment and $1.4 million total annualized costs. Impacts of PSES on the nonferrous metals manufacturing industry are small overall. The range of potential price increases is 0.08 to 2.7 percent and no further production loss is expected to occur. These standards have been found to be economically achievable for all subcategories.

NSPS/PSNS: New source limitation are promulgated for 19 of the 25 subcategories. The technology basis for NSPS and PSNS is the same as for BAT for all subcategories where BAT and PSES are promulgated. One subcategory, Secondary Mercury, is subject only to new source limitations because it contains no existing discharging plants. New plants in this subcategory will not be at a serious cost disadvantage as a result of these limitations. Hence this regulation is not expected to discourage entry into the industry.

The Agency believes this regulation is economically achievable and imposes no significant impacts on any subcategory within the industry.

C. Executive Order 12291

Executive Order 12291 requires EPA and other agencies to perform regulatory impact analysis of major regulations. Major rules impose an annual cost to the economy of $100 million or more or meet other economic impact criteria. This regulation for nonferrous metals manufacturing, Phase II, is not a major rule. The costs expected to be incurrred by this industry will be significantly less than $100 million. Therefore a formal Regulatory Impact Analysis is not required. This rulemaking satisfies the requirements of the Executive Order for a nonmajor rule. The Agency's regulatory strategy considered both the cost and economic impacts of the regulation.

D. Regulatory Flexibility Analysis

Pub. L. 96-354 requires that EPA prepare a Regulatory Flexibility Analysis for regulations that have a significant impact on a substantial number of small entities. This analysis may be conducted in conjunction with or as part of other Agency analyses. A small business analysis is included in the economic impact analysis for this regulation.

For each metal subcategory, small entities were defined on the plant level, using annual plant capacity as an indicator of size. A total of 14 plants were identified in 5 subcategories as small, representing 19 percent of all discharging plants. For these 5 subcategories, the Agency evaluated (1) annual compliance costs as a percentage of revenues for small facilities and (2) annual compliance costs as a percent of the cost of production for small entities. Based on this analysis, EPA has determined that there will not be a significant impact on small entities within this category. Therefore the Agency is not required to perform a formal Regulatory Flexibility Analysis. I hereby certify pursuant to 50 U.S.C. 605(b) that this regulation will not have a significant impact on a substantial number of small entities.

E. SBA Loans

The Agency is continuing to encourage small plants to use Small Business Administration (SBA) financing as needed for pollution control equipment. The three basic programs are (1) the Pollution Control Bond Program, (2) the Section 503 Program, and (3) the Regular Business Loan Program. Eligibility for SBA programs varies by industry. Generally, a company must be independently owned, not dominant in its field, with maximum employee size ranges from 250 to 1500 employees (dependent upon industry), and maximum annual sales revenues ranges from $275,000 to $22 million (varies by industry).

For further information and specifics on the Pollution Control Bond Program, contact: U.S. Small Business Administration, Office of Pollution Control Financing, 4040 North Fairfax Drive, Rosslyn, Virginia 22203, (703) 235-2902.

The Section 503 Program, as amended in July 1980, allows long-term loans to small-and medium-sized businesses. These loans are made by SBA approved local development companies. These companies are authorized to issue Government-backed debentures that are bought by the Federal Financing Bank, an arm of the U.S. Treasury.

Through SBA's Regular Business Loan Program, loans are made available by commercial banks and are guaranteed by SBA. This program has interest rates equivalent to market rates.

For additional information on the Regular Business Loan and Section 503 Programs, contact your district or local SBA office. The coordinator at EPA headquarters is Ms. Frances Dessell, who may be reached at (200) 382-5373.

VII. Nonwater Quality Aspects of Pollution Control

The elimination or reduction of one form of pollution may cause other environmental problems. Therefore, sections 304(b) and 306 of the Act require EPA to consider the nonwater quality environmental impacts (including energy requirements) of certain regulations. In compliance with these provisions, EPA has considered the effect of this regulation on air pollution, solid waste generation, water scarcity, and energy consumption. While it is difficult to balance pollution problems against each other and against energy utilization, EPA is promulgating regulations which it believes best serve often competing national goals.

The following nonwater quality environmental impacts (including energy requirements) are associated with the final regulation. The Administrator has determined that the impacts identified below are justified by the benefits associated with compliance with the limitations and standards.

A. Air Pollution

Imposition of BPT may increase slightly emissions of ammonia from air stripping technology recommended for one plant in one subcategory, secondary molybdenum and vanadium. These emissions are not expected to create a substantial air pollution problem. BAT, NSPS, PSES, and PSNS will result in a slight increase in air pollution. The Agency does not consider any of these impacts to be significant.

B. Solid Waste

EPA estimates that the promulgated BAT regulation for nonferrous metals manufacturing phase II facilities will generate 14,000 kkg (15,400 tons) of solid wastes (wet basis—1982 production levels) as a result of wastewater treatment. These wastes will be comprised of treatment system sludges containing cyanide and toxic metals, including arsenic, antimony, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, and zinc.

EPA estimates that promulgated PSES will approximate 2400 kkg (2,640 tons) per year. These sludges will be similar to those generated by BAT treatment technology. NSPS and PSNS will increase the amount of solid waste by less than 5 percent of the BAT and PSES quantities.

Wastes generated by primary smelters and refiners are currently exempt from regulation by Act of Congress [Resource Conservation and Recovery Act (RCRA), Section 3001(b)]. Consequently, sludges generated from treating primary industries' wastewater are not presently subject to regulation as hazardous wastes.

Wastes generated by secondary metal industries can be regulated as hazardous. However, the Agency examined the solid wastes that would be generated at secondary nonferrous metals manufacturing plants by the suggested treatment technologies and believes they are not hazardous wastes under the Agency's regulations implementing Section 3001 of the Resource Conservation and Recovery Act. None of these wastes are listed specifically as hazardous. Nor are they likely to exhibit a characteristic of hazardous waste. This judgment is made based on the recommended technology of lime precipitation and filtration. By the addition of a small excess of lime during treatment, similar sludges, specifically toxic metal bearing sludges, generated by other industries such as the iron and steel industry passed the Extraction Procedure (EP) toxicity test. See 40 CFR 261.24. Thus, the Agency believes that the wastewater sludges will similarly not be EP toxic if the recommended technology is applied.

Although it is the Agency's view that solid wastes generated as a result of these guidelines are not expected to be hazardous, generators of these wastes must test the waste to determine if the wastes meet any of the characteristics of hazardous waste (see 40 CFR 262.11).

If these wastes identified should be or are listed as hazardous, they will come within the scope of RCRA's "cradle to grave" hazardous waste management program, requiring regulation from the point of generation to point of final disposition. EPA's generator standards would require generators of hazardous nonferrous metals manufacturing wastes to meet containerization, labeling, recordkeeping, and reporting requirements. In addition, if plants dispose of hazardous wastes off-site, they must prepare a manifest which tracks the movement of the wastes from the generator's premises to a permitted off-site treatment, storage, or disposal facility. See 40 CFR 262.20 [45 FR 33142 (May 19, 1980), as amended at 45 FR

86973 (December 31, 1980)]. The transporter regulations require transporters of hazardous wastes to comply with the manifest system to assure that the wastes are delivered to a permitted facility. See 40 CFR 263.20 [45 FR 33151 (May 19, 1980), as amended at 45 FR 86973 (December 31, 1980)]. Finally, RCRA regulations establish standards for hazardous waste treatment, storage, and disposal facilities allowed to receive such wastes. See 40 CFR Parts 264 and 265.

Even if these wastes are not identified as hazardous, they still must be disposed of in a manner that will not violate the open dumping prohibition in section 4005 of RCRA. The Agency has calculated as part of the costs for wastewater treatment the cost of hauling and disposing of additional waste generated assuming 19% was hazardous. We also conducted a sensitivity analysis which considered the economic impact on the industry if all their sludges were to become hazardous. The analysis indicated that, under this assumption, one additional plant closure could be expected. This plant is in the secondary molybdenum and vanadium subcategory. For more details, see Section VIII of the General Development Document and Chapter 25 of the economic impact assessment.

C. Energy Requirements

EPA estimates that the achievement of BPT effluent limitations will result in electrical energy consumption of approximately 18.5 million kilowatt-hours per year. The BAT technology should increase the energy requirements above BPT by 0.3 million kilowatt-hours per year. PSES will add 5.8 million kilowatt-hours per year. To achieve the BPT and BAT efffluent limitations, a typical direct discharger will increase total energy consumption by less than 1 percent of the energy consumed for production purposes.

The Agency estimates that the NSPS and PSNS technology will, in general, require as much energy as the existing source limitations.

D. Consumptive Water Loss

Treatment and control technologies that require extensive recycling and reuse of water may require cooling mechanisms. Evaporative cooling mechanisms can cause water loss and contribute to water scarcity problems—a primary concern in arid and semi-arid regions. While this regulation assumes water reuse, the overall amount of reuse through evaporative cooling mechanisms is low and the quantity of water involved is not significant. In addition, most nonferrous metals manufacturing plants are located in areas where water scarcity is not a problem. We conclude that the consumptive water loss is insignificant and that the pollution reduction benefits of recycle technologies outweigh their impact on consumptive water loss.

VIII. Pollutants and Subcategories Not Regulated

The Settlement Agreement In NRDC v. Train, supra contains provisions authorizing the exclusion from regulation, in certain instances, of toxic pollutants and industry subcategories. These provisions have been rewritten in a Revised Settlement Agreement which was approved by the District Court for the District of Columbia on March 9, 1979. See NRDC v. Costle, 12 ERC 1833 (D.D.C. 1979). The pollutants selected for regulation are listed by subcategory in Appendix B.

A. Exclusion of Pollutants

The Agency has deleted the following three pollutants from the toxic pollutant list. These are dichlorofluoromethane, and trichlorofluoromethane, (46 FR 2266 (January 8, 1981)) and bis(chloromethyl ether (46 FR 10723 (February 4, 1981)).

Paragraph 8(a)(iii) of the Settlement Agreement allows the Administrator to exclude from regulation toxic pollutants not detectable by Section 304(h) analytical methods or other state-of-the-art methods. The toxic pollutants not detected or otherwise determined not to be present and, therefore, excluded from regulation are listed in Appendix C of this notice by subcategory.

Paragraph 8(a)(iii) also allows the Administrator to exclude from regulation toxic pollutants detected in amounts too small to be effectively reduced by technologies known to the Administrator. Appendix D to this notice lists the toxic pollutants in each subcategory which were detected in the effluent in amounts at or below the nominal limit of analytical quantification. Appendix E to this notice lists the toxic pollutants in each subcategory present in amounts which are too small to be effectively reduced by technologies considered applicable to the category and which, therefore, are excluded from regulation.

Paragraph 8(a)(iii) also allows the Administrator to exclude from regulation toxic pollutants detectable in the effluent from only a small number of sources wiith in the subcategory because they are uniquely related to those sources. Appendix F to this notice lists for each subcategory the toxic pollutants which were detected in the effluents of only one plant, are uniquely related to that plant, and are not related to the manufacturing processes under study.

Paragraph 8(a)(iii) also allows the Administrator to exclude from regulation toxic pollutants which will be effectively controlled by the technologies upon which are based other effluent limitations and guidelines or pretreatment standards. Appendix G lists those toxic pollutants which will be effectively controlled by the BAT limitations, NSPS, and pretreatment standards, even though they are not specifically regulated.

B. Exclusion of Subcategories

Additionally, Paragraph 8(a)(iv) of the Settlement Agreement authorizes the exclusion of subcategories in which the amount and toxicity of each pollutant in the discharge do not justify developing national regulations.

EPA executed an affidavit on May 10, 1979 excluding six primary and five secondary metal subcategories from regulation under Paragraph 8(a)(iv) of the Settlement Agreement. The subcategories were:

Primary Arsenic
Primary Antimony
Primary Barium
Primary Bismuth
Primary Calcium
Primary Tin
Secondary Beryllium
Secondary Cadmium
Secondary Molybdenum
Secondary Tantalum
Secondary Babbitt

Four of these excluded subcategories—antimony, primary tin, secondary molybdenum, and secondary tantalum, have been reconsidered for regulation in nonferrous phase II. This is due to data received by EPA since May 10, 1979, showing a need for effluent guidelines to be established for these four subcategories. Today's notice promulgates effluent limitations and guidelines which include these four subcategories.

In addition to the subcategories already excluded under Paragraph 8(a)(iv) of the Settlement Agreement, EPA is excluding four additional primary and one additional secondary metal subcategory from regulation. EPA is excluding these subcategories because no existing primary lithium, primary boron, or secondary zinc plants discharge wastewater to surface waters or POTWs, because there are no pollutants at treatable concentrations in primary magnesium discharges and because the amount and toxicity of discharges in primary cesium and rubidium is small. The subcategories are:

Primary Boron
Primary Cesium and Rubidium
Primary Lithium
Primary Magnesium
Secondary Zinc

The Agency is excluding the following subcategory from BAT effluent guidelines and pretreatment standards for existing sources under provisions of Paragraph 8(a)(iv) because there are no facilities discharging wastewater to surface waters or POTW. It is:

Secondary Mercury

The Agency is excluding the following subcategories from BAT effluent guidelines under provisions of Paragraph 8(a)(iv) because there are no facilities discharging wastewater to surface waters. They are:

Secondary Indium
Secondary Nickel

EPA is also excluding 10 subcategories from pretreatment standards for existing sources because there are no facilities discharging wastewater to POTWs. They are:

Primary Antimony
Bauxite Refining
Primary Beryllium
Molybdenum Metallurgical Acid Plants
Primary Molybdenum and Rhenium
Secondary Molybdenum and Vanadium
Primary Nickel and Cobalt
Primary Precious Metals and Mercury
Secondary Tantalum
Secondary Uranium

PSES regulations are being promulgted for the secondary tungsten and cobalt subcategory because after proposal EPA learned of the existence of one discharging plant.

The Agency is excluding the following subcategory from pretreatment standards for existing sources under the provisions of Paragraph 8 because the amount and toxicity of the discharges are small.

IX. Public Participation and Response to Major Comments

Industry, government, individual citizens, and environmental groups have participated during the development of these effluent limitations guidelines and standards. These regulations were proposed on June 27, 1984 (49 FR 26352). The comment period ended on October 2, 1984. Two permit writers workshops open to the public were held on this rulemaking on August 14, 1984, in Providence, Rhode Island and on August 28, 1984 in San Francisco, California. On August 21, 1984 in Washington, D.C., a public hearing was held on the proposed pretreatment standards at which only one person presented testimony. A notice of data availability and a request for comment on data obtained after proposal was published in the Federal Register on March 18, 1985. The comment period ended April 17, 1985.

Since proposal, the following 36 commenters submitted approximately 883 individual comments on the proposed regulation: National Association of Recycling Industries, Inc., U.S. Department of the Interior, County Sanitation Districts of Los Angeles County, Breed, Abbott and Morgan for American Chemical and Refining Co. Inc., Eagle-Picher Industries, Dow Chemical U.S.A., Department of Energy, American Chemical and Refining Company, Inc., Teledyne Wah Chang Albany, Inco Alloys International, Inc., United States Department of the Interior, Sunshine Mining Company, KBI a Division of Cabot Corporation, Timet a Division of Titanium Metals Corporation of America, Reynolds Metals Company, Englehard Corporation, Robinson & McElwee for Kaiser Aluminum and Chemical Corporation, The Aluminum Association, GTE Service Corporation, Resource Consultants for Tex Tin Corporation, Brush Wellman Inc., American Mining Congress, Energy, Amax Nickel, Inc., Amax Environmental Services Inc., Climax Molybdenum Company, Aluminum Company of America, Proler International Corp., Johnson Matthey, Inc., Gulf Chemical and Metallurgical Company, United States Borax and Chemical Corporation, Indium Corporation of America, U.S. Department of Commerce, Handy and Harmon Company, Tex Tin Corporation, Holland and Hart for GTE Products Corporation. We considered all comments carefully and made appropriate changes in the regulation whenever data and information warranted modifications. Eleven major issues raised in comments are addressed in this section of the preamble. Other major comments are discussed briefly in Section V, Control Treatment Options and Technology Basis for Final Regulations. All comments received and our detailed responses to these comments are included in a document entitled Response to Public Comments, Proposed Nonferrous Metals Manufacturing Phase II Effluent Limitations and Standards which has been placed in the public record for this regulation. The following is a discussion of the Agency's responses to the principal comments:

1. Treatment Effectiveness and Technology Basis

i. Combined Metals Data Base and Other Pollutants

Comment: Commenters objected to the use of the combined metals data base to generate treatment effectiveness numbers for the nonferrous metals manufacturing industry. The commenters claim that the proposed levels for aluminum, arsenic, barium, boron, cadmium, copper, iron, lead, manganese, selenium, tin and zinc cannot be met because the data base from which they were developed is small and unrepresentative of typical nonferrous plants. Commenters argued that industry data should be used to establish nonferrous phase II treatment effectiveness levels and that homogeneity with the combined metals data base had not been established for nonferrous phase II wastewaters because an insufficient percentage of nonferrous phase II plants had been sampled to establish homogeneity.

Response: We have evaluated the data submitted by the commenters. We feel that the data are not appropriate for a number of reasons including inadequate treatment system operation and design, lack of pH and TSS data, and lack of paired influent-effluent data sets. In one particular case more than 99 percent of the flow through the treatment plant is non-scope or storm water rather than process water, and therefore, it is not representative of nonferrous metals manufacturing.

Secondary precious metals producers do have high zinc values. We have considered typical zinc concentrations for that industry and have determined that two stage precipitation may be necessary to meet CMDB based limits. The additional cost of two stage precipitaton is estimated to add only about 5 percent to the annual cost and has been considered in the economic impact assessment.

Between proposal and promulgation we sampled nine nonferrous metals forming plants to measure lime and settle treatment effectiveness levels for barium, boron, molybdenum, titanium, vanadium, zirconium, uranium, tungsten and tantalum and published those numbers in the notice of new data. We developed values for tin based on information from two metal finishing plants which show removals of tin across the lime and settle treatment system. We requested additional treatment effectiveness data for all the pollutants being considered for regulation and only received inadequate information for molybdenum, vanadium, and ammonia; we received no information for gold, platinum, and palladium.

ii. Molybdenum Treatment Effectiveness

Comment: Commenters objected to effluent limits based on lime and settle treatment claiming that this technology is ineffective and also claiming that iron coprecipitation is not widely used throughout the industry and therefore should not form the technical basis for regulation.

Response: The molybdenum treatment effectiveness numbers used for proposal (1.4 mg/l) were based on measurements taken at a primary molybdenum plant. At that time we did not have any reason to suspect the validity of those numbers specially since our data show removal across the treatment system. However, after proposal the company complained that this treatment effectiveness level was not the result of lime and settle treatment.

Since proposal we have obtained data from two other planes on molybdenum through lime and settle, single stage solvent extraction and iron coprecipitation showing removal of molybdenum across the system. The lime and settle system sampled at the secondary molybdenum facility, even though poorly operated, achieves an average of 40 mg/l and 85 percent removal, contradicting the claim that molybdenum cannot be removed in lime and settle. However, we relied on data obtained at a uranium forming plant using iron coprecipitation for molybdenum removal, which achieves 1.8 mg/l in the effluent. These values are equivalent to those used for proposal.

Iron coprecipitation is a technology widely used in industry, and it is discussed in both the proposed and final development document for this rulemaking. Therefore, we disagree with the industry contention that the proposed technology is experimental.

One commenter, in addressing this issue, neglected to discuss the quality and nature of the bench scale test for iron coprecipitation. On further request for clarification it proved to be a single analysis. Although this is scarcely adequate to make any conclusions about iron coprecipitation effectiveness, examining the data at the iron dosage used shows reduction of vanadium to the detection limit of nickel to 1.2 ppm and slight reductions in cobalt, molybdenum and boron. Molybdenum is shown as being removed to 65 mg/l. Therefore, our data and the data submitted support lower numbers for molybdenum.

iii. Sulfide Precipitation

Comment: Commenters claim that sulfide precipitation is not a commercially demonstrated or proven technology for nonferrous metals manufacturing plants.

Response: Sulfide precipitation is demonstrated in the primary tungsten subcategory where it is used to remove molybdenum as a sulfide from the processing of tungsten ore. It has been discussed earlier in this preamble.

iv. Ammonia Steam Stripping

Comment: Commenters claim that the proposed limits for ammonia cannot be met and that levels should be 200–1500 ppm.

Response: We have sampled ammonia steam strippers and air strippers. We received bench scale data showing that steam stripping can achieve the levels proposed in secondary precious metals.

v. Cyanide Precipitation

Comment: Precious metals manufacturers advocate the use of cyanide destruction methods for cyanide removal because this technology allows them to recycle metals easily in their process. They object to our technology, cyanide precipitation, because they claim it creates a hazardous sludge.

Response: We based our cyanide limits on cyanide precipitation because it is easier to use and cheaper than cyanide destruction. In estimating the cost of this technology we considered the cyanide bearing sludge as hazardous and costed it appropriately. However, any plant is free to use the technology of its choice so long as it meets the limitations.

2. Strategic Metals

Comment: Commenters were concerned about a possible detrimental impact of these regulations on the U.S. mineral industry, and subsequently, on U.S. national security. Commenters argue that disruption of imported mineral and energy supplies could affect U.S. economic and military strength because of the national dependence on unreliable foreign sources of strategic and critical minerals and claim that faulty assumptions about the economic situation of the minerals industry underestimate the economic impact of the regulation.

Response: The Agency has evaluated the potential impact of this regulation on the U.S. mineral industry and on the strategic stockpiles of the metals in question. With regard to individual facilities, the Agency's economic analysis as discussed in more detail in the economic development document indicates that this regulation will not cause closing of any plants in the minerals industry affected by this rulemaking. With regard to strategic stockpiles for particular metals, the stockpiles are in excess and/or reserves are maintained in final product form. One possible exception is tungsten, reserves of which are maintained primarily in ore and concentration form. Domestic tungsten manufacturers have experienced continued poor performance in the past several years primarily as a result of the overvalued U.S. dollar. This situation has allowed overseas manufacturers, particularly the Chinese, to capture increasingly larger shares of the domestic tungsten market. Curent market conditions, if they persist, may force several U.S. tungsten facilities to discontinue operations. EPA believes, however, that treatment costs incurred as a result of this regulation for the tungsten cobalt subcategory will be extremely low (less than $15,000 annually) for most plants which process tungsten ore concentrates. Those which incur higher costs are large, integrated facilities with ample resources available to either continue production during depressed conditions, or at least maintain their facilities for later use if market pressures force them to cease operations temporarily.

3. Costing

Comment: Commenters stated that the cost estimates for sludge disposal, cyanide precipitation, ammonia steam stripping, and ion exchange were underestimated.

Response: EPA estimates sludge generation by using a computerized mass balance procedure which takes into account raw wastewater characteristics, reagent addition, and wastewater flow rates. While we do not generate individual engineering design estimates, the methodology used results in a reasonably good estimate of the national average cost for disposal of toxic or hazardous sludge. This analysis cannot take into account the restrictions or pricing that individual landfill operations impose when accepting waste materials.

The effluent limitations for cyanide were based on cyanide precipitation instead of cyanide destruction because lower treatment effectiveness levels can be achieved at a lower cost. We assumed that cyanide bearing sludges would be hazardous and estimated hazardous sludges disposal costs for any subcategory where we relied on this technology.

We have evaluated the ammonia removal equipment in place at each facility in the category. Where the steam stripper is considered to be adequately designed, we have not assigned any costs for it. Where the existing equipment is not adequately designed, we have included costs for new equipment. Our ammonia steam stripping cost estimates take into account cleaning of the columns due to solids buildup. Excess capacity is incorporated into the column design to account for downtime resulting from cleaning and other reasons. The assumptions used for steam rate and maintenance were based on vendor recommendations and are general guidelines which can be applied broadly. Also, the costs associated with operating an ammonia steam stripper are dominated by the cost of energy associated with steam production which constitutes 50 percent of operating costs, chemical costs constitute 45 percent. Routine maintenance costs are small in comparison, constituting approximately 1 percent of the operating costs.

Although steam stripping is demonstrated in the category, we have developed costs for new steam stripping equipment. Also, our cost estimates assume that the recovered ammonia stream can be recycled back to the process. If this is not the case, the dilute ammonia can be sold to other companies or used in agriculture.

With respect to ion exchange, we followed the manufacturer's recommendations on the maximum capacity of precious metals that the resin will retain (per cubic foot), which show that the amount of precious metal value to be recovered, very substantially exceeds the cost of the resin. Therefore, we believe that our costing assumptions are correct for ion exchange costs for secondary precious metals.

4. Economic Impact

Comment: Commenters objected to the economic impact analysis because of methodological limitations and the allegedly incorrect assumption that forthcoming conditions will be similar to 1978–82. They point out that since 1979–80 mineral prices have declined and capacity utilization, sales and profits have changed little or decreased since 1982. Other commenters echoed these concerns and submitted various newspaper articles on the depressed condition of the domestic minerals industry.

Three companies stated that the economic impacts would be more severe than the Agency estimates because EPA did not properly consider the economic environment in which these plants operate. A producer of primary tungsten, cobalt, tantalum and molybdenum, complained that EPA discounted the effect of imports when in fact, imports of metals and metallic products have caused them to lose 25 percent of the upgraded tungsten market. They claim foreign competitors undersell them by several dollars and provided data to substantiate their claim. They experienced losses also in cobalt and tantalum. They argue that the market is very sensitive to fluctuations and they are barely managing to stay in business.

Molybdenum producers claim that the price of molybdenum will fluctuate between $4 and $5 per pound for the next five to 10 years whereas the economic analysis was based on $8.36 per pound. If the lower price is used, they believe the results of the economic analysis will be different, indicating a severe impact on the regulated industry.

The secondary molybdenum and vanadium producer objects to being grouped with the primary molybdenum and rhenium subcategory for the economic analysis because of their relative size, different processes, and their need to underprice to compete with the primary producers. They also complained that the methodology used failed to take into account the value of one facility as a resource recovery operation in reducing the need to dispose of waste, nor has EPA considered the effect of a closure of the plant on the petrochemical industry.

The secondary molybdenum and vanadium and the secondary tin subcategories claim that they are small businesses under the SBA criteria of having less than 500 employees for secondary producers and 2,500 employees for primary producers. As such, they contend that the Agency should have conducted a small business impact analysis for these two subcategories to evaluate alternatives that would ameliorate the impacts.

Response: EPA believes a number of the commenters' claims are valid and has therefore revised its economic impact assessment accordingly. In general, all projections on prices, production, earnings and cash flow employed in the analysis at proposal have been reviewed to determine if the impact of foreign competition has rendered them overoptimistic. EPA had, in earlier analysis, predicted the nonferrous metals manufacturing industry would recover from the 1982 recession such that earnings and output levels would approach their "average" values from the 1978–82 business cycle by the time of compliance with the regulation. Examination of current conditions in the industry reveals that, for the most part, this recovery has not occurred. Although a number of factors can be cited as contributors to the continued poor performance, the primary consideration has been the persistently strong U.S. dollar on international exchange markets.

In most cases, domestic metals manufacturers compete actively for market shares with foreign producers. The strong U.S. dollar creates a distinct disadvantage for these domestic manufacturers in that it makes their products more expensive abroad at the same time it makes imports cheaper. The combined result is that production, sales and profits may be lower than they would be in the absence of an overvalued currency. We have reviewed the economic analysis and, where applicable, revised our compliance period projections of prices, production and earnings downward to reflect the impact of cheaper imports and the associated loss of sales.

EPA has also adjusted its forecast of molybdenum prices employed in the analysis of impacts of molybdenum refiners. Previously, the Agency had projected a return to the 1978–82 period average market value of $8.36 per pound. However continued oversupply of molybdenum has resulted in persistently lower prices with little expectation of significant increase. Hence the price employed in the analysis has been changed to $5.44 per pound, the average real price over the last thirteen years. After this adjustment, EPA still predicts minimal economic impacts on the primary molybdenum rhenium facilities. However the secondary molybdenum and vanadium plant appeared unprofitable under the initially proposed BPT technology. This technology basis has since been revised (i.e. ammonia air stripping instead of ammonia steam stripping) and is now considered economically achievable (see below).

In summary, EPA's economic reevaluation of the nonferrous metals manufacturing industry has led to the following projections:

Significant economic impacts (ie, reduced profitability) is projected for the only secondary molybdenum vanadium facility and baseline closures are expected in the secondary tin subcategory. The former is Gulf Chemical, the only plant in the subcategory. This plant recovers molybdenum and vanadium by processing large volumes of spent hydrodesulfurization catalyst, a waste product of the petroleum manufacturing industry. Gulf currently accepts this waste product free of charge, thus providing petroleum refiners with a relatively safe and inexpensive method of disposal. It is believed the Gulf facility will be able to recover a large percentage of the compliance costs incurred under this regulation by charging the refiners on a bulk or per ton basis for the service it provides. In the event this is not possible and the current "zero price" is maintained, EPA projects the plant will remain marginally profitable nonetheless. Hence, the Agency does not believe this plant is likely to cease operation as a result of this regulation. In the tin subcategory, two of the four discharging plants are believed to be baseline closures, although they are still operating while incurring losses. We also project one production line closure in the large secondary precious metals subcategory, occurring at the BPT option. Several other production lines, one each in primary antimony and secondary nickel (both single discharger subcategories), and secondary tungsten and cobalt appear to be unprofitable at the BPT option. It is doubtful these lines will shut-down as a result of this regulation however, since they are intermediate operations in large, integrated facilities which appear healthy overall.

Regarding the small business comment, EPA has some flexibility in defining the small business criteria.

In the nonferrous smelting and refining industry, the SBA defines as small those firms whose employment is fewer than 2500 for primary producers and fewer than 500 for secondary producers. This definition is, however, inappropriate because this analysis is concerned with plants operating as distinct units rather than with firms composed of several plants. Many of the plants are, in fact, owned by firms that produce metals not covered by this regulation. In order to avoid confusion and maintain consistency, annual plant capacity in multiple-discharger subcategories was used as an indicator of size.

5. Subcategorization

Comment: One commenter argued that primary and secondary tin should be further subcategorized. The commenter stated that there are significant differences in manufacturing processes and raw wastewater characteristics between primary and secondary tin operations, and that the decision to include both in a single subcategory was based on a lack of data relating to primary tin smelting and associated wastewater generation.

Another commenter argued that primary and secondary titanium should be regulated as separate subcategories. The commenter claimed that there are no similarities between primary and secondary titanium processing or wastewater characteristics.

Response: A post-proposal sampling visit was conducted on a primary tin facility to obtain wastewater characteristics data on primary tin raw wastewaters. These samplings revealed that the existing smelter is processing secondary materials mostly and in fact it is a secondary tin manufacturer using a pyrometallurgical process. Therefore, we have concluded that there are no promary tin manufacturers in the U.S. at this time and therefore there is no need to regulate primary tin. Differences in wastewater have been considered by sampling all building blocks and making adjustments in pollutants regulated and allowable limitations.

The information on primary and secondary titanium plants contained in dcp's and trip reports shows that at least one titanium plant processes both primary and secondary materials. Therefore, we do not believe that it is necessary to separate them into two subcategories.

6. Confidentiality

Comment: Half of the supplemental development documents in this category are confidential. Commenters argued that reliance on confidential information in developing the final regulations in effect denies public participation and defeats the purpose of the Administrative Procedures Act. That issue was raised as regards to the primary molybdenum and rhenium, secondary tantalum, secondary tungsten and cobalt, and primary and secondary tin subcategories.

Response: The first three subcategories are confidential whereas the last one is not. All data available on primary and secondary tin, has been supplied to the affected facility. Individual facilities in the other three subcategories had access to their own data but the aggregate of all the facilities was not supplied to anyone individually.

Although the confidential development documents have not been publicly released, the limitations and the treatment effectiveness concentrations have been. Each plant also knows its building blocks, processes and flows, is able to calculate their individual mass allowances, compare results against the limitations and determine the EPA flow basis. This is the most important information the plant needs to comment effectively on the proposed regulation.

We were only required to hold so much information confidential because the companies claimed it confidential. In addition, we did not receive this comment as part of the original proposal. Commenters only raised this issue 5½ months after close of the proposal comment period as part of tjeor response to the notice of new data.

7. Need for National Standards

Comment: Commenters asked for exemptions from national standards in the following subcategories primary beryllium, secondary molybdenum and vanadium, primary nickel and cobalt, primary and secondary tin. The reasons for requesting exemptions were: that there is only one plant in the subcategory; that there are only a small number of plants in the subcategory; that the existing permit effectively controls their discharges; and, that there is previous precedent set by EPA in the Printing and Publishing Category for excluding certain subcategories because the discharge of toxic pollutants was de minimum (48 FR 44783, September 30, 1983).

Response: Under the authority of the Clean Water Act it is within the Agency's discretion to establish national regulations for subcategories with few or single discharging facilities. EPA has carefully condsidered the issue raised by the commenters and under the terms of paragraph 8 of the Settlement Agreement (N.R.D.C. v Train) has excluded five subcategories entirely from national regulation and where warranted, portions of other subcategories at certain levels of regulation. This is discussed in more detail in section VIII of this preamble.

Two subgroups of the subcategories have single plant issues: those having only one discharger but a greater number of plants who do not discharge wastewater (primary Antimony, primary Beryllium, primary and secondary Germanium and Gallium, secondary Nickel, primary Precious Metals and Mercury, primary Rare Earth Metals, secondary Uranium, primary Zirconium and Hafnium), and those who are literally single manufacturing facilities: (primary cesium and rubidium, secondary indium, secondary molybdenum and vanadium and primary nickel and cobalt). We considered these two groups and are issuing limitations and standards to control all discharging plants. For primary and secondary Germanium and Gallium, we are issuing a regulation to guard against the possibility of any existing zero discharger electing to discharge at some point in the future and because the existing plant discharges to a RCRA permitted impoundment.

For subcategories with no existing dischargers, we had proposed new source standards for almost all because of the potential for discharges arising from new plants if the subcategory is exempt from regulation. In the case of primary boron we have not promulgated a new source standard because the Agency believes the construction of a new source in a non arid area which would result in a discharge is very unlikely.

The data and information available to the Agency clearly indicate that the existing permits do not require the same level of pollutant control as the regulation being promulgated here. As an example, a large secondary molybdenum vanadium plant discharges high levels (600 million kg per year of pollutants after partial treatment) even with the existing permit. Moreover, the Agency believes that since all the studies necessary for developing the regulations have been completed uniform regulation will be more efficiently achieved using the specific knowledge gained through the effluent guidelines development process than for the permit writer to be forced to deal with these specific complex facilities.

The nature of the nonferrous metals industry is very unique because we are dealing with highly specialized metallurgical processes for fairly uncommon metals that command high prices. Almost every plant in the subcategory can be claimed as unique either by virtue of its processes or the materials produced. The Agency has addressed the specialized nature of manufacturing operations involved in this category by establishing a large number of subcategories. This has allowed the Agency to establish regulations that take into account a large number of the distinguishing factors raised by commenters. However, the consequence of this subcategorization has led to many subcategories with a small number of facilities. The Agency does not believe that its efforts to take into account many of the distinguishing factors raised by industry commenters should lead to the conclusion that there then should be no national regulation.

8. Specific Pollutants

Comment: Commenters questioned the Agency's authority to regulate the pollutant uranium. Various commenters claim that it is inappropriate to regulate the nonconventional pollutants tin, germanium, gold, platinum, palladium, molybdenum, and tungsten because they are not toxic and are not listed in the NRDC consent decree; and that molybdenum cannot be used as a surrogate for other pollutants because of its different chemical behavior.

Another issue raised was that secondary molybdenum and vanadium and primary tin manufacturing have a disproportionately high number of regulated parameters (19) compared with other subcategories which could lead to significant analytical and monitoring costs. They claim that since LSF removes all metals down to their solubility, only a few metals need to be selected for regulation to verify treatment performance. Regulation of addition parameters would be redundant, unduly burdensome and expensive.

Others objected to the rationale of regulating the principal metal being produced at a facility arguing that only the environmentally significant metals (Cr, Zn, Cd, Pb, etc.) should be regulated.

Response: The Agency has considered these comments and the fact that the Nuclear Regulatory Commission presently classifies uranium in any form, including depleted uranium, as a "source material" under the Atomic Energy Act. In light of the Supreme Court's holding in *Train* v. *Colorado Public Interest Research Group*, 426 U.S. 1 (1976) that "source," "special nuclear," and "by-product" materials are not pollutants within the meaning of the Clean Water Act, EPA has decided not to finalize effluent limitations guidelines for uranium under the Clean Water Act at this time. Since proposal, EPA has sampled two uranium manufacturing and forming plants and collected additional data on the raw wastewaster characteristics of uranium manufacturing and forming waste streams and the effectiveness of lime and settle treatment for removal of the pollutant uranium. Revised treatment effectiveness concentrations for the pollutant uranium were published in the **Federal Register** notice of new data (50 FR 1018, March 18, 1985). Discharge allowances for uranium based on all the available data are included in the development document as guidance.

The Agency is specifically directed under the Clean Water Act to regulate all pollutants whenever the regulation of such pollutants is appropriate to the wastewaters being regulated. In the case of some of the wastewaters subject to this rulemaking, the Agency deemed it appropriate to regulate the listed non-conventional pollutants in some subcategories.

The Agency believes that the regulation of molybdenum to the levels established in this regulation will usually require the installation and proper operation of the technology basis for the limitations or other technology which will achieve a similar removal of other pollutants. Since molybdenum is the principal metal being manufactured at most of the facilities where it is regulated, it is the metal most likely to be present in the wastewater consistently. Therefore it is the most likely candidate metal for use as an indicator for the removal of other unregulated toxic metals.

For the notice of new data all pollutants present in the raw discharge at treatable levels were considered for regulation for the secondary molybdenum and vanadium, and secondary tin subcategories. In developing the final regulation the Agency took into account the probability that many of the toxic pollutants would be removed by the model technology when certain key indicator pollutants were regulated. The final regulation only regulates seven pollutants in the secondary molybdenum and secondary vanadium subcategory and six pollutants in the secondary tin subcategory.

9. Production Normalizing Parameters

Comment: Several commenters claimed that raw material input would be a more appropriate production normalizing parameter for certain wastewater streams.

Response: The Agency has carefully considered all comments submitted on the appropriateness of production normalizing parameters (PNP). In a number of cases discussed in section V above we have modified the PNP for particular waste streams where justified by information and data supplied by commenters. With respect to raw material input, it appears that while the product metal content in raw materials may vary from batch to batch, there is an average ratio of product metal produced to raw material input over a period of time such as days and weeks. Each facility has the ability to influence this ratio by scheduling, selection and blending of raw materials selected for use in production. Moreover, the permit may take into account a variety of production variations which may bear on this problem.

10. pH Limits

Comment: Four commenters objected to the proposed pH limits arguing that since they do not discharge any toxic metals, controlling the pH in the range proposed is unnecessary and could cause additional environmental impacts. Others claim that the proposed pH range was incompatible with most existing water quality standards. They believe that industry will be subjected to a more restrictive range, depending on the state, leaving industry a range of 1.5 pH units in the case of a permit pH range of 7.5 to 9.0. They claim that it is difficult to maintain a pH range of less than 3 standard units with the current technology. They request that EPA establish a pH range of 6.0 to 9.0, allowing excursions up to 10.0 if the elevated pH results from treatment with alkali to precipitate selected metals.

Response: The proposed pH range stems from the fact that most toxic metals precipitate and have minimum solubilities at an alkaline pH. Therefore, to ensure that the toxic limits for the metals are achieved, the pH must be controlled within this range. While the Agency believes that most lime and settle treatment systems can be operated well within 1.5 pH units, there are other remedies available to the operator such as post treatment pH adjustment, the use of stream mixing zones where permitted as a part of water quality compliance and the mixing of treated effluent with nonprocess waters where both are to be discharged to the same water body.

11. Permit Writer Guidance

Comment: Commenters asked EPA to provide guidance to permit writers including language in the regulations to account for "non-scope" flows including stormwater.

Response: The Agency believes the development of storm water and other site-specific wastewater source mass limitations are inappropriate on a national basis because the volume of wastewater is not constant from plant to plant and is not production related. Because of this, mass limitations on a national basis cannot be developed due to the variability of wastewater flow from plant to plant. Therefore the Agency believes site-specific wastewater is best handled on a case by case basis in the NPDES permitting process. This is the agency's consistent approach to this issue, reflected not only in other categorical effluent limitations guidelines and standards (eg. aluminum forming category), but in general implementing regulations for these limitations and standards as well (see 40 CFR 401.11(q), definition of process wastewater).

X. Best Management Practices (BMP)

Section 304(e) of the Clean Water Act authorizes the Administrator to prescribe "best management practices" (BMP) described under Legal Authority and Background. EPA is not promulgating specific BMP for nonferrous metals manufacturing category discussed in today's preamble.

XI. Upset and Bypass Provisions

A recurring issue of concern has been whether industry guidelines should include provisions authorizing noncompliance with effluent limitations during periods of "upset" or "bypass." An upset, sometimes called an 'excursion,"is unintentional noncompliance beyond the reasonable control of the permittee. It has been argued that an upset provision in EPA's effluent limitations is necessary because such upsets will inevitably occur even in properly operated control equipment. Because technology-based limitations require only what technology can achieve, many claim that liability for upsets is improper. When confronted with this issue, courts have been divided on whether an explicit upset or excursion exemption is necessary, or whether upset or excursion incidents may be handled through exercise of EPA's enforcement discretion. Compare *Marathon Oil Co.* v. *EPA*, 564 F.2d 1253 (9th Cir. 1977) with *Weyerhauser* v. *Costle, supra*, and *Corn Refiners Association, et al.* v. *Costle*, No. 78–1069 (8th Cir., April 2, 1979). See also *American Petroleum Institute* v. *EPA*, 540 F.2d 1023 (10th Cir. 1976); *CPC International, Inc.* v. *Train*, 540 F.2d 1320 (8th Cir. 1976); *FMC Corp.* v. *Train*, 539 F.2d 973 (4th Cir. 1976).

An upset is an unintentional episode during which effluent limits are exceeded; a bypass, however, is an act of intentional noncompliance during which waste treatment facilities are circumvented in emergency situations. We have, in the past, included bypass provisions in NPDES permits.

EPA has determined that both upset and bypass provisions should be included in NPDES permits and has promulgated permit regulations that included upset and bypass permit provisions (see 40 CFR 122.41 (m) and (n), 48 FR 14146 (April 1, 1983)). The upset provision establishes an upset as an affirmative defense to prosecution for violation of technology-based effluent limitations. The bypass provision authorizes bypassing to prevent loss of life, personal injury, or severe property damage. Consequently, although permittees in the nonferrous metals manufacturing industry will be entitled to upset and bypass provisions in NPDES permits, this regulation does not address these issues. Upset provisions are also contained in the General Pretreatment regulations, 40 CFR Part 403.

XII. Variances and Modifications

Upon promulgation of this final regulation, the appropriate effluent limitations must be applied in all Federal and State NPDES permits thereafter issued to direct dischargers in the nonferrous metals manufacturing category. In addition, upon promulgation, the pretreatment standards are directly applicable to indirect dischargers.

For BPT effluent limitations, the only exception to the binding limitations is EPA's "fundamentally different factors" variance. See *E.I. duPont deNemours Co.* v. *Train*, 430 U.S. 112 (1977); *Weyerhauser Co.* v. *Costle, supra*. This variance recognizes factors concerning a particular discharger that are fundamentally different from the factors considered in this rulemaking. However, the economic ability of the individual operator to meet the compliance cost for BPT standards is not a consideration for granting a variance. See *National Crushed Stone Association* v. *EPA*, 449 U.S. 64 (1980). Although this variance clause was originally set forth in EPA's 1973 to 1976 industry regulations it is now included in the general NPDES regulations and is cross-referenced in this regulation as well as other specific industry regulations. See the general NPDES regulation at 40 CFR Part 125, Subpart D.

The BAT limitations in this regulation also are subject to EPA's "fundamentally different factors" variance. In addition, BAT limitations for nonconventional pollutants are subject to modifications under sections 301(c) and 301(g) of the Act. These statutory modifications do not apply to toxic or conventional pollutants. According to section 301(j)(1)(B), applications for these modifications must be filed within 270 days after promulgation of final effluent limitations guidelines. See 40 CFR 122.21(1)(2).

The economic modification section of the Act (section 301(c)) gives the Administrator authority to modify BAT requirements for nonconventional pollutants for dischargers who file a permit application after July 1, 1978, upon a showing that such modified requirements will (1) represent the maximum use of technology within the economic capability of the owner or operator and (2) result in reasonable further progress toward the elimination of the discharge of pollutants. The environmental modification section (301(g)) allows the Administrator, with the concurrence of the State, to modify BAT limitations for nonconventional pollutants from any point source upon a showing by the owner or operator of such point source satisfactory to the Administrator that:

(a) Such modified requirements will result at a minimum in compliance with BPT limitations or any more stringent limitations necessary to meet water quality standards,

(b) Such modified requirements will not result in any additional requirements on any other point or nonpoint source, and

(c) Such modification will not interfere with the attainment or maintenance of that water quality which shall assure protection of public water supplies, and the protection and propagation of a balanced population of shellfish, fish, and wildlife, and allow recreational activities, in and on the water, and such modification will not result in the discharge of pollutants in quantities which may reasonably be anticipated to pose an unacceptable risk to human health or the environment because of bioaccumulation, persistency in the environment, acute toxicity, chronic toxicity (including carcinogenicity, mutagenicity, or teratogenicity), or synergistic propensities.

Section 301(j)(1)(B) of the Act requires that application for modifications under section 301 (c) or (g) must be filed within 270 days after the promulgation of an applicable effluent limitations guideline regulation. Initial applications must be filed with the Regional Administrator and, in States with approved NPDES programs, a copy must be sent to the Director of the State program. Initial applications to comply with 301(j) must include the name of the permittee, the permit and outfall number, the applicable effluent guideline regulation, and whether the permittee is applying for a 301(c) or 301(g) modification or both.

Indirect dischargers subject to PSES and PSNS may be eligible for removal credits for pollutants removed by POTW See 40 CFR 403.7.

New sources subject to NSPS and PSNS are not eligible for any other statutory or regulatory modifications. See, *E.I. duPont deNemours & Co.* v. *Train, supra.*

Indirect dischargers subject to PSES are eligible for the "fundamentally different factors" variance. See 40 CFR 403.13. On September 20, 1983, the United States Court of Appeals for the Third Circuit held that "FDF variances for toxic pollutants regulated under PSES are forbidden by the Act," and remanded § 403.13 to EPA. *NAMF et al.* v. *EPA*, 719 2.d 624. (3rd Cir., September 20, 1983).

In response to this decision, EPA amended § 403.13(b)(2) to suspend the availability of FDF variances for toxic pollutants covered by categorical pretreatment standards. See 49 FR 5131 (February 10, 1984). In addition, EPA sought review of this portion of the Third Circuit's decision. On February 27, 1985, the Supreme Court reversed the Third Court of Appeals and held that FDF variances for toxic pollutants are not prohibited by the Clean Water Act. *Chemical Manufacturers Assoc.* v. *Natural Resources Defense Council, 105* S. Ct. 1102 (1985). Accordingly, indirect dischargers covered by categorical pretreatment standards for existing sources may be eligible for an FDF variance. Any interested person should refer to 40 CFR 403.13 for the procedures and deadline for applying for this variance.

XIII. Implementation of Limitations and Standards

A. Relationship to NPDES Permits

The BPT and BAT limitations and NSPS in this regulation will be applied to individual nonferrous metals manufacturing plants through NPDES permits issued by EPA or approved state agencies, under section 402 of the Act. As discussed in the preceding section of this preamble, these limitations must be applied in all Federal and State NPDES permits excepts to the extent that variances and modifications are expressly authorized. Other aspects of the interaction between these limitations and NPDES permits are discussed below.

One issue that warrants consideration is the effect of this regulation on the powers of NPDES permit issuing authorities. EPA has developed the limitations and standards in this regulation to cover the typical facility in each subcategory of this point source category. However the promulgation of this regulation will not restrict the power of any permitting authority to act in any manner consistent with law or these or any other EPA regulations, guidelines, or policy. For example, even if this regulation does not control a particular pollutant, the permit issuer may still limit the pollutant on a case-by-case basis when such actions are necessary to carry out the purpose of the Act. In addition, to the extent that State water quality standards or other provisions of State or Federal law require limitation of pollutants not covered by this regulation (or require more stringent limitations on covered pollutants), the permit issuing authority must apply those limitations.

A second topic that warrants discussion is the operation of EPA's NPDES enforcement program, many aspects of which were considered in developing this regulation. The Agency emphasizes that although the Clean Water Act is a strict liability statute, the Agency may elect to use any of the enforcement responses available under the CWA. *Sierra Club* v. *Train*, 557 F.2d 485 (5th Cir. 1977).

B. Indirect Dischargers

For indirect dischargers, PSES and PSNS are implemented under National Pretreatment Program procedures outlined in 40 CFR 403. The table below may be of assistance in resolving questions about the operation of that program. A brief explanation of some of the submissions indicated on the table follows:

A "request for category determination" is a written request, submitted by an indirect discharger or its POTW, for a determination of which categorical pretreatment standard applies to the indirect discharger. This assists the indirect discharger in knowing which PSES or PSNS limits it will be required to meet. See 40 CFR 403.6(a).

INDIRECT DISCHARGERS SCHEDULE FOR SUBMITTAL AND COMPLIANCE

Item	Applicable Source	Date or Time Period	Measured From	Submitted To
Request for Category Determination	Existing	60 days or 60 days	From effective date of standard From Federal Register Development Document Availability	Director(1)
	New	Prior to commencement of discharge to POTW		
Request for Fundamentally Different Factors Variance	Existing	180 days Or 30 days	From effective date of standard From final decision on category determination	Director(1)
Baseline Monitoring	All	180 days	From effective date of standard or final decision on category determination	Control Authority(2)
Report on Compliance	Existing	90 days	From date for final compliance	Control Authority(2)
	New	90 days	From commencement of discharge to POTW	
Periodic Compliance Reports	All	June and December		Control Authority(2)

(1) Director = a) Chief Administrative Officer of a state water pollution control agency with an approved pretreatment program, or b) EPA Regional Water Division Director, if state does not have an approved pretreatment program

(2) Control Authority = a) POTW if its pretreatment program has been approved, or b) Director of state water pollution control agency with an approved pretreatment program, or c) EPA Regional Administrator, if state does not have an approved pretreatment program.

A "request for fundamentally different factors variance" is a mechanism by which a categorical pretreatment standard may be adjusted, making it more or less stringent, on a case-by-case basis. If an indirect discharger, a POTW, or any interested person believes that factors relating to a specific indirect discharger are fundamentally different from those factors considered during development of the relevant categorical pretreatment standard and that the existence of those factors justifies a different discharge limit from that specified in the categorical standard, then it may submit a request to EPA for such a variance (See 40 CFR 403.13).

A "baseline monitoring report" is the first report an indirect discharger must file following promulgation of an applicable standard. The baseline report includes: an identification of the indirect discharger; a description of its operations; a report on the flows of regulated streams and the results of sampling analyses to determine levels of regulated pollutants in those streams; a statement of the discharger's compliance or noncompliance with the standard; and a description of any additional steps required to achieve compliance. See 40 CFR 403.12(b).

A "report on compliance" is required of each indirect discharger within 90 days following the date for compliance with an applicable categorical pretreatment standard. The report must indicate the concentration of all regulated pollutants in the facility's regulated process waste streams; the average maximum daily flows of the regulated streams; and a statement of whether compliance is consistently being achieved, and if not, what additional operation and maintenance or pretreatment is necessary to achieve compliance. See 40 CFR 403.12(d).

A "periodic compliance report" is a report on continuing compliance with all applicable categorical pretreatment standards. It is submitted twice per year (June and December) by indirect dischargers subject to the standards. The report must provide the concentrations of the regulated pollutants in its discharge to the POTW; the average and maximum daily flow rates of the facility; the methods used by the indirect discharger to sample and analyze data, and a certification that these methods conform to the methods outlined in the regulations. See 40 CFR 403.12(e).

XIV. Availability of Technical Information

The basis for this regulation is detailed in four major documents. Analytical methods are discussed in "Sampling and Analysis Procedures for Screening of Industrial Effluents for Priority Pollutants." EPA's technical conclusions are detailed in the "Development Document for Effluent Guidelines, New Source Performance Standards, and Pretreatment Standards for the Nonferrous Metals Manufacturing Phase II Point Source Category." The Agency's economic analysis is presented in "Economic Impact Analysis of Effluent Limitations and Standards for the Nonferrous Metals Manufacturing Phase II Industry." A detailed response to the public comments received on the proposed regulation is presented in a report "Responses to Public Comments on the Proposed Nonferrous Metals Manufacturing Phase II Effluent Limitations Guidelines and Standards," which is a part of the public record for this regulation. Copies of the technical and economic documents may be obtained from the National Technical Information Service, Springfield, Virginia 22161, (703) 487–4600. Additional information concerning the economic impact analysis may be obtained from Mr. Mark Kahorst, Economic Analysis Staff (WH–586), U.S. Environmental Protection Agency, 401 M Street SW., Washington, D.C. 20460 or by calling (202) 382–5834. Technical information may be obtained from Ms. Maria M. Irizarry, Industrial Technology Division (WH–552), U.S. Environmental Protection Agency, 401 M Street SW., Washington, D.C. 20460 or by calling (202) 382–7126.

This regulation was submitted to the Office of Management and Budget for review as required by Executive Order 12291. This rule does not contain any information collection requirements subject to OMB review under the Paperwork Reduction Act of 1980. 44 U.S.C. 3501 et seq.

List of Subjects in 40 CFR Part 421

Metals, Nonferrous metals manufacturing, Water pollution control, Waste treatment and disposal.

Dated: August 27, 1985.

Lee M. Thomas,

Administrator.

XV. APPENDICES

Appendix A—Abbreviations, Acronyms, and Other Terms Used in This Notice

Act—The Clean Water Act.

Agency—The U.S. Environmental Protection Agency.

BAT—The best available technology economically achievable under 4(b)(2)(B) of the Act.

BCT—The best conventional pollutant control technology under Section 304(b)(4) of the Act.

BMP—Best management practices under Section 304(e) of the Act.

BPT—The best practicable control technology currently available on 304(b)(1) of the Act.

Clean Water Act—The Federal Water Pollution Control Act Amendments of 1972 (33 U.S.C. 1251 et seq.), as amended by the Clean Water Act of 1977 (Public Law 95-217).

Direct Discharger—A facility which discharges or may discharge pollutants into waters of the United States.

Indirect Discharger—A facility which discharges or may discharge pollutants into a publicly owned treatment works.

NPDES Permits—A National Pollutant Discharge Elimination System permit issued under Section 402 of the Act.

NSPS—New source performance standards under Section 306 of the Act.

POTW—Publicly owned treatment works.

PSES—Pretreatment standards for existing sources of indirect discharges under Section 307(b) of the Act.

PSNS—Pretreatment standards for new sources of indirect dischargers under Sections 307(b) and (c) of the Act.

RCRA—Resource Conservation and Recovery Act (Public Law 94-580) of 1976, Amendments to Solid Waste Disposal Act.

Appendix B— Pollutants Selected for Regulation by Subcategory

(a) Subpart N—Primary Antimony Subcategory

114. antimony
115. arsenic
123. mercury
total suspended solids (TSS)
pH

(b) Subpart O—Primary Beryllium Subcategory

117. beryllium
119. chromium
120. copper
121. cyanide (total)
ammonia
fluoride
total suspended solids (TSS)
pH

(c) Subpart P—Primary and Secondary Germanium and Gallium Subcategory

115. arsenic
122. lead
128. zinc
fluoride
total suspended solids (TSS)
pH

(d) Subpart Q—Secondary Indium Subcategory

118. cadmium
122. lead
128. zinc
indium
total suspended solids (TSS)
pH

(e) Subpart R—Secondary Mercury Subcategory

122. lead
123. mercury
total suspended solids (TSS)
pH

(f) Subpart S—Primary Molybdenum and Rhenium Subcategory

115. arsenic
122. lead
124. nickel
125. selenium
molybdenum
ammonia (as N)
fluoride
total suspended solids (TSS)
pH

(g) Subpart T—Secondary Molybdenum and Vanadium Subcategory

115. arsenic
119. chromium
122. lead
124. nickel
iron
molybdenum
ammonia (as N)
total suspended solids (TSS)
pH

(h) Subpart U—Primary Nickel and Cobalt Subcategory

120. copper
124. nickel
cobalt
ammonia (as N)
total suspended solids (TSS)
pH

(i) Subpart V—Secondary Nickel Subcategory

119. chromium
120. copper
124. nickel
total suspended solids (TSS)
pH

(j) Subpart W—Primary Precious Metals and Mercury Subcategory

122. lead
123. mercury
126. silver
128. zinc
gold
oil and grease
total suspended solids (TSS)
pH

(k) Subpart X—Secondary Precious Metals Subcategory

120. copper
121. cyanide
128. zinc
gold
palladium
platinum
ammonia (as N)
total suspended solids (TSS)
pH

(l) Subpart Y—Primary Rare Earth Metals Subcategory

9. hexachlorobenzene
119. chromium (total)
122. lead
124. nickel
total suspended solids (TSS)
pH

(m) Subpart Z—Secondary Tantalum Subcategory

120. copper
122. lead
124. nickel
128. zinc
tantalum
total suspended solids (TSS)
pH

(n) Subpart AA—Secondary Tin Subcategory

115. arsenic
121. cyanide
122. lead
iron
tin
fluoride
total suspended solids (TSS)
pH

(o) Subpart AB—Primary and Secondary Titanium Subcategory

119. chromium (total)
122. lead
124. nickel
titanium
oil and grease
total suspended solids (TSS)
pH

(p) Subpart AC—Secondary Tungsten and Cobalt Subcategory

120. copper
124. nickel
cobalt
ammonia (as N)
tungsten
oil and grease
total suspended solids (TSS)
pH

(q) Subpart AD—Secondary Uranium Subcategory

119. chromium (total)
120. copper
124. nickel
fluoride
total suspended solids (TSS)
pH

(r) Subpart AE—Primary Zirconium and Hafnium Subcategory

119. chromium (total)
121. cyanide (total)
122. lead
124. nickel
ammonia
total suspended solids (TSS)
pH

Appendix C—Toxic Pollutants Not Detected

(a) Subpart N—Primary Antimony Subcategory

1. acenaphthene*
2. acrolein*
3. acrylonitrile*
4. benzene*
5. benzidene*
6. carbon tetrachloride (tetrachloromethane)*
7. chlorobenzene*
8. 1,2,4-trichlorobenzene*
9. hexachlorobenzene*
10. 1,2-dichloroethane*
11. 1,1,1-trichloroethane*
12. hexachloroethane*
13. 1,1-dichloroethane*
14. 1,1,2-trichloroethane*
15. 1,1,2,2,-tetrachloroethane*
16. chloroethane*
17. bis(2-chloromethyl)ether (Deleted)*
18. bis(2-chloroethyl)ether*
19. 2-chloroethyl vinyl ether (mixed)*
20. 2-chloronaphthalene*
21. 2,4,6-trichlorophenol*
22. para-chloro meta-cresol*
23. chloroform (trichloromethane)*
24. a-chlorophenol*
25. 1,2-dichlorobenzene*
26. 1,3-dichlorobenzene*
27. 1,4-dichlorobenzene*
28. 3,3'-dichlorobenzidene*
29. 1,1-dichloroethylene*
30. 1,2-trans-dichloroethylene*
31. 2,4-dichlorophenol*
32. 1,2-dichloropropane*
33. 1,3-dichloropropylene (1,3-dichloropropene)*
34. 2,4-dimethylphenol*
35. 2,4-dinitrotoluene*
36. 2,6-dinitrotoluene*
37. 1,2-diphenylhydrazine*
38. ethylbenzene*
39. fluoranthene*
40. 4-chlorophyenyl phenyl ether*
41. 4-bromophenyl phenyl ether*
42. bis(2-chloroisopropyl)ether*
43. bis(2-chloroethoxy)methane*
44. methylene chloride (dichloromethane)*
45. methyl chloride (chloromethane)*
46. methyl bromide (bromomethane)*
47. bromoform (tribromomethane)*
48. dichlorobromomethane*
49. trichlorofluoromethane (Deleted)*
50. dichlorodifluoromethane (Deleted)*
51. chlorodibromomethane*
52. hexachlorobutadiene*
53. hexachlorocyclopentadiene*
54. isophorone*
55. naphthalene*
56. nitrobenzene*
57. 2-nitrophenol*
58. 4-nitrophenol*
59. 2,4-dinitrophenol*
60. 4,6-dinitro-o-cresol*
61. N-nitrosodimethylamine*
62. N-nitrosodiphenylamine*
63. N-nitrosodi-n-propylamine*
64. pentachlorophenol*
65. phenol*
66. bis(2-ethylhexyl) phthalate*
67. butyl benzyl phthalate*
68. di-n-butyl phthalate*
69. di-n-octyl phthalate*
70. diethyl phthalate*
71. dimethyl phthalate*
72. benzo(a)anthracene (1,2-benzanthracene)*
73. benzo(a)pyrene (3,4-benzopyrene)*
74. 3,4-benzofluoranthene*
75. benzo (k) fluoranthene (11,12-benzofluoranthene)*
76. chrysene*
77. acenaphthylene*
78. anthracene*
79. benzo(ghi)perylene (1,12-benzoperylene)*
80. fluorene*
81. phenanthrene*
82. dibenazo (a,h)anthracene (1,2,5,6-dibenzanthracene)*
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)*
84. pyrene*
85. tetrachloroethylene*
86. toluene*
87. trichloroethylene*
88. vinyl chloride (chloroethylene)*
89. aldrin*
90. dieldrin*
91. chlordane (technical mixture and metabolites)*
92. 4,4'-DDT*
93. 4,4'-DDE (p,p'DDX)*
94. 4,4'-DDD (p,p'TDE)*
95. a-endosulfan-Alpha*
96. b-endosulfan-Beta*
97. endosulfan sulfate*
98. endrin*
99. endrin aldehyde*
100. heptachlor*
101. heptachlor epoxide*
102. a-BHC-Alpha*
103. b-BHC-Beta*
104. r-BHC (lindane)-Gamma*
105. g-BHC-Delta*
106. PCB-1242 (Arochlor 1242)*
107. PCB-1254 (Arochlor 1254)*
108. PCB-1221 (Arochlor 1221)*
109. PCB-1232 (Arochlor 1232)*
110. PCB-1248 (Arochlor 1248)*
111. PCB-1260 (Arochlor 1260)*
112. PCB-1016 (Arochlor 1016)*
113. toxaphene*
116. asbestos (fibrous)
117. beryllium*
119. chromium (total)*
121. cyanide (total)*
124. nickel*
125. selenium*
126. silver*
127. thallium*
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

*We did not anaylze for these pollutants in samples of raw wastewater from this subcategory. These pollutants are not believed to be present based on the Agency's best engineering judgment which includes consideration of raw materials and process operations.

(b) Subpart O—Primary Beryllium Subcategory

1. acenaphthene*
2. acrolein*
3. acrylonitrile*
4. benzene*
5. benzidene*
6. carbon tetrachloride (tetrachloromethane)*
7. chlorobenzene*
8. 1,2,4-trichlorobenzene*
9. hexachlorobenzene*
10. 1,2-dichloroethane*
11. 1,1,1-trichloroethane*
12. hexachloroethane*
13. 1,1-dichloroethane*
14. 1,1,2-trichloroethane*
15. 1,1,2,2-tetrachloroethane*
16. chloroethane*
17. bis(2-chloromethyl)ether (Deleted)*
18. bis(2-chloroethyl)ether*
19. 2-chloroethyl vinyl ether (mixed)*
20. 2/chloronaphthalene*
21. 2,4,6-trichlorophenol*
22. para-chloro meta-cresol*
23. chloroform (trichloromethane)*
24. 2-chlorophenol*
25. 1,2-dichlorobenzene*
26. 1,3-dichlorobenzene*
27. 1,4-dichlorobenzene*
28. 3,3'-dichlorobenzidene*
29. 1,1-dichloroethylene*
30. 1,2-trans-dichloroethylene*
31. 2,4-dichlorophenol*
32. 1,2-dichloropropane*
33. 1,3-dichloropropylene (1,3-dichloropropene)*
34. 2,4-dimethylphenol*
35. 2,4-dinitrotoluene*
36. 2,6-dinitrotoluene*
37. 1,2-diphenylhydrazine*
38. ethylbenzene*

39. fluoranthene*
40. 4-chlorophenyl phenyl ether*
41. 4-bromophenyl phenyl ether*
42. bis(2-chloroisopropyl)ether*
43. bis(2-chloroethoxy)methane*
44. methylene chloride (dichloromethane)*
45. methyl chloride (chloromethane)*
46. methyl bromide (bromomethane)*
47. bromoform (tribromomethane)*
48. dichlorobromomethane)*
49. trichlorofluoromethane (Deleted)*
50. dichlorodifluoromethane (Deleted)*
51. chlorodibromomethane*
52. hexachlorobutadiene*
53. hexachlorocyclopentadiene*
54. isophorone*
55. naphthalene*
56. nitrobenzene*
57. 2-nitrophenol*
58. 4-nitrophenol*
59. 2,4-dinitrophenol*
60. 4,6-dinitro-o-cresol*
61. N-nitrosodimethylamine*
62. N-nitrosodiphenylamine*
63. N-nitrosodi-n-propylamine*
64. pentachlorophenol*
65. phenol*
66. bis(2-ethylhexyl) phthalate*
67. butyl benzyl phthalate*
68. di-n-butyl phthalate*
69. di-n-octyl phthalate*
70. diethyl phthalate*
71. dimethyl phthalate*
72. benzo(a)anthracene (1,2-benzanthracene)*
73. benzo(a)pyrene (3,4-benzopyrene)*
74. 3,4-benzofluoranthene*
75. benzo(k)fluoranthene (11,12-benzofluoranthene)*
76. chrysene*
77. acenaphthylene*
78. anthracene*
79. benzo(ghi)perylene (1,12-benzoperylene)*
80. fluorene*
81. phenanthrene*
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)*
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)*
84. pyrene*
85. tetrachloroethylene*
86. toluene*
87. trichloroethylene*
88. vinyl chloride (chloroethylene)*
89. aldrin*
90. dieldrin*
91. chlordane (technical mixture and metabolites)*
92. 4,4'-DDT*
93. 4,4'-DDE (p,p'DDX)*
94. 4,4'-DDD (p,p'TDE)*
95. a-endosulfan-Alpha*
96. b-endosulfan-Beta*
97. endosulfan sulfate*
98. endrin*
99. endrin aldehyde*
100. heptachlor*
101. heptachlor epoxide*
102. a-BHC-Alpha*
103. b-BHC-Beta*
104. r-BHC (lindane)-Gamma*
105. g-BHC-Delta*
106. PCB-1242 (Arochlor 1242)*
107. PCB-1254 (Arochlor 1254)*
108. PCB-1221 (Arochlor 1221)*
109. PCB-1232 (Arochlor 1232)*
110. PCB-1248 (Arochlor 1248)*
111. PCB-1260 (Arochlor 1260)*
112. PCB-1016 (Arochlor 1016)*
113. toxaphene*
116. asbestos (fibrous)
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

*We did not analyze for these pollutants in samples of raw wastewater from this subcategory. These pollutants are not believed to be present based on the Agency's best engineering judgment which includes consideration of raw materials and process operations.

(c) Subpart P—Primary and Secondary Germanium and Gallium Subcategory

1. acenaphthene
2. acrolein
3. acrylonitrile
5. benzidene
6. carbon tetrachloride (tetrachloromethane)
7. chlorobenzene
8. 1,2,4-trichlorobenzene
10. 1,2-dichloroethane
11. 1,1,1-trichloroethane
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane
17. bis(2-chloromethyl)ether (Deleted)
18. bis(2-chloroethyl)ether
19. 2-chloroethyl vinyl ether (mixed)
20. 2-chloronaphthalene
22. para-chloro meta-cresol
24. 2-chlorophenol
25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene
28. 3,3'-dichlorobenzidene
29. 1,1-dichloroethylene
30. 1,2-trans-dichloroethylene
31. 2,4-dichlorophenol
32. 1,2-dichloropropane
33. 1,3-dichloropropylene (1,3-dichloropropene)
34. 2,4-dimethylphenol
35. 2,4-dinitrotoluene
36. 2,6-dinitrotoluene
37. 1,2-diphenylhydrazine
38. ethylbenzene
39. fluoranthene
40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl)ether
43. bis(2-chloroethoxy)methane
45. methyl chloride (chloromethane)
46. methyl bromide (bromomethane)
47. bromoform (tribromomethane)
48. dichlorobromomethane
49. trichlorofluoromethane (Deleted)
50. dichlorodifluoromethane (Deleted)
51. chlorodibromomethane
52. hexachlorobutadiene
53. hexachlorocylopentadiene
54. isophorone
55. naphthalene
56. nitrobenzene
57. 2-nitrophenol
58. 4-nitrophenol
59. 2,4-dinitrophenol
60. 4,6-dinitro-o-cresol
61. N-nitrosodimethylamine
62. N-nitrosodiphenylamine
63. N-nitrosodi-n-propylamine
65. phenol
67. butyl benzyl phthalate
69. di-n-octyl phthalate
70. diethyl phthalate
71. dimethyl phthalate
72. benzo(a)anthracene (1,2-benzanthracene)
73. benzo(a)pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
75. benzo (k) fluoranthene (11,12-benzofluoranthene)
76. chrysene
77. acenaphthylene
78. anthracene
79. benzo (ghi)perylene (1,12-benzoperylene)
80. flourene
81. phenanthrene
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)
84. pyrene
85. tetrachloroethylene
86. toluene
88. vinyl chloride (chloroethylene)
89. aldrin
90. dieldrin
91. chlordane (technical mixture and metabolites)
92. 4,4'-DDT
93. 4,4'-DDE (p,p'DDX)
94. 4,4'-DDD (p,p'TDE)
95. a-endosulfan-Alpha
96. b-endosulfan-Beta
97. endosulfan sulfate
98. endrin
99. endrin aldehyde
100. heptachlor
101. heptachlor epoxide
102. a-BHC-Alpha
103. b-BHC-Beta
104. r-BHC (lindane)-Gamma
105. g-BHC-Delta
106. PCB-1242 (Arochlor 1242)
107. PCB-1254 (Arochlor 1254)
108. PCB-1221 (Arochlor 1221)
109. PCB-1232 (Arochlor 1232)
110. PCB-1248 (Arochlor 1248)
111. PCB-1260 (Arochlor 1260)
112. PCB-1016 (Arochlor 1016)

113. toxaphene
116. asbestos (fibrous)
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

(d) Subpart Q—Secondary Indium Subcategory

1. acenaphthene
2. acrolein
3. acrylonitrile
4. benzene
5. benzidene
6. carbon tetrachloride (tetrachloromethane)
7. chlorobenzene
8. 1,2,4-trichlorobenzene
9. hexachlorobenzene
10. 1,2-dichloroethane
11. 1,1,1-trichloroethane
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane
17. bis(2-chloromethyl)ether (Deleted)
18. bis(2-chloroethyl)ether
19. 2-chloroethyl vinyl ether (mixed)
20. 2-chloronaphthalene
21. 2,4,6-trichlorophenol
22. para-chloro meta-cresol
23. chloroform (trichloromethane)
24. 2-chlorophenol
25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene
28. 3,3'-dichlorobenzidene
29. 1,1-dichloroethylene
30. 1,2-trans-dichloroethylene
31. 2,4-dichlorophenol
32. 1,2-dichloropropane
33. 1,3-dichloropropylene (1,3-dichloropropene)
34. 2,4-dimethylphenol
35. 2,4-dinitrotoluene
36. 2,6-dinitrotoluene
37. 1,2-diphenylhydrazine
38. ethylbenzene
39. fluoranthene
40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl)ether
43. bis(2-chloroethoxy)methane
45. methyl chloride (chloromethane)
46. methyl bromide (bromomethane)
47. bromoform (tribromomethane)
48. dichlorobromomethane
49. trichlorofluoromethane (Deleted)
50. dichlorodifluoromethane (Deleted)
51. chlorodibromomethane
52. hexachlorobutadiene
53. hexachlorocylopentadiene
54. isophorone
55. naphthalene
56. nitrobenzene
57. 2-nitrophenol
58. 4-nitrophenol
59. 2,4-dinitrophenol
60. 4,6-dinitro-o-cresol
61. N-nitrosodimethylamine
62. N-nitrosodiphenylamine
63. N-nitrosodi-n-propylamine
66. bis(2-ethylhexyl) phthalate
67. butyl benzyl phthalate
69. di-n-octyl phthalate
72. benzo(a)anthracene (1,2-benzanthracene)
73. benzo(a)pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
75. benzo(k)fluoranthene (11,12-benzofluoranthene)
76. chrysene
77. acenaphthylene
78. anthracene
79. benzo(ghi)perylene (1,12-benzoperylene)
80. fluorene
81. phenanthrene
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)
84. pyrene
85. tetrachloroethylene
86. toluene
87. trichloroethylene
88. vinyl chloride (chloroethylene)
89. aldrin
90. dieldrin
91. chlordane (technical mixture and metabolites)
92. 4,4'-DDT
93. 4,4'-DDE (p,p'DDX)
94. 4,4'-DDD (p,p'TDE)
95. a-endosulfan-Alpha
96. b-endosulfan-Beta
97. endosulfan sulfate
98. endrin
99. endrin aldehyde
100. heptachlor
101. heptachlor epoxide
102. a-BHC-Alpha
104. r-BHC (lindane)-Gamma
105. g-BHC-Delta
106. PCB-1242 (Arochlor 1242)
107. PCB-1254 (Arochlor 1254)
108. PCB-1221 (Arochlor 1221)
109. PCB-1232 (Arochlor 1232)
110. PCB-1248 (Arochlor 1248)
111. PCB-1260 (Arochlor 1260)
112. PCB-1016 (Arochlor 1016)
113. toxaphene
116. asbestos (fibrous)
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

(e) Subpart R—Secondary Mercury Subcategory

1. acenaphthene*
2. acrolein*
3. acrylonitrile*
4. benzene*
5. benzidene*
6. carbon tetrachloride (tetrachloromethane)*
7. chlorobenzene*
8. 1,2,4-trichlorobenzene*
9. hexachlorobenzene*
10. 1,2-dichloroethane*
11. 1,1,1-trichloroethane*
12. hexachloroethane*
13. 1,1-dichloroethane*
14. 1,1,2-trichloroethane*
15. 1,1,2,2-tetrachloroethane*
16. chloroethane*
17. bis(2-chloromethyl)ether (Deleted)*
18. bis(2-chloroethyl)ether*
19. 2-chloroethyl vinyl ether (mixed)*
20. 2-chloronaphthalene*
21. 2,4,6-trichlorophenol*
22. para-chloro meta-cresol*
23. chloroform (trichloromethane)*
24. 2-chlorophenol*
25. 1,2-dichlorobenzene*
26. 1,3-dichlorobenzene*
27. 1,4-dichlorobenzene*
28. 3,3'-dichlorobenzidene*
29. 1,1-dichloroethylene*
30. 1,2-trans-dichloroethylene*
31. 2,4-dichlorophenol*
32. 1,2-dichloropropane*
33. 1,3-dichloropropylene (1,3-dichloropropene)*
34. 2,4-dimethylphenol*
35. 2,4-dinitrotoluene*
36. 2,6-dinitrotoluene*
37. 1,2-diphenylhydrazine*
38. ethylbenzene*
39. fluoranthene*
40. 4-chlorophenyl phenyl ether*
41. 4-bromophenyl phenyl ether*
42. bis(2-chloroisopropyl)ether*
43. bis(2-chloroethoxy)methane*
44. methylene chloride (dichloromethane)*
45. methyl chloride (chloromethane)*
46. methyl bromide (bromomethane)*
47. bromoform (tribromomethane)*
48. dichlorobromomethane*
49. trichlorofluoromethane (Deleted)*
50. dichlorodifluoromethane (Deleted)*
51. chlorodibromomethane*
52. hexachlorobutadiene*
53. hexachlorocyclopentadiene*
54. isophorone*
55. naphthalene*
56. nitrobenzene*
57. 2-nitrophenol*
58. 4-nitrophenol*
59. 2,4-dinitrophenol*
60. 4,6-dinitro-o-cresol*
61. N-nitrosodimethylamine*
62. N-nitrosodiphenylamine*
63. N-nitrosodi-n-propylamine*
64. pentachlorophenol*
65. phenol*
66. bis(2-ethylhexyl) phthalate*
67. butyl benzyl phthalate*
68. di-n-butyl phthalate*
69. di-n-octyl phthalate*
70. diethyl phthalate*
71. dimethyl phthalate*
72. benzo(a)anthracene (1,2-benzanthracene)*
73. benzo(a)pyrene (3,4-benzopyrene)*
74. 3,4-benzofluoranthene*

75. benzo(k)fluoranthene (11,12-benzofluoranthene)*
76. chrysene*
77. acenaphthylene*
78. anthracene*
79. benzo(ghi)perylene (1,12-benzoperylene)*
80. fluorene*
81. phenanthrene*
82. dibenzo(a,h)anthracene (1,2,5,6-dibenzanthracene)*
83. ideno(1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)*
84. pyrene*
85. tetrachloroethylene*
86. toluene*
87. trichloroethylene*
88. vinyl chloride (chloroethylene)*
89. aldrin*
90. dieldrin*
91. chlordane (technical mixture and metabolites)*
92. 4,4'-DDT*
93. 4,4'-DDE (p,p'DDX)*
94. 4,4'-DDD (pp'TDE)*
95. a-endosulfan-Alpha*
96. b-endosulfan-Beta*
97. endosulfan sulfate*
98. endrin*
99. endrin aldehyde*
100. heptachlor*
101. heptachlor epoxide*
102. a-BHC-Alpha*
103. b-BHC-Beta*
104. r-BHC (lindane)-Gamma*
105. g-BHC-Delta*
106. PCB-1242 (Arochlor 1242)*
107. PCB-1254 (Arochlor 1254)*
108. PCB-1221 (Arochlor 1221)*
109. PCB-1232 (Arochlor 1232)*
110. PCB-1248 (Arochlor 1248)*
111. PCB-1260 (Arochlor 1260)*
112. PCB-1016 (Arochlor 1016)*
113. toxaphene*
116. asbestos (fibrous)
121. cyanide (total)*
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

*We did not analyze for these pollutants in samples of raw wastewater from this subcategory. These pollutants are not believed to be present based on the Agency's best engineering judgment which includes consideration of raw materials and process operations.

(f) Subpart S—Primary Molybdenum and Rhenium Subcategory

1. acenaphthene
2. acrolein
3. acrylonitrile
4. benzene
5. benzidene
6. carbon tetrachloride (tetrachloromethane)
7. chlorobenzene
8. 1,2,4-trichlorobenzene
9. hexachlorobenzene
10. 1,2-dichloroethane
11. 1,1,1-trichloroethane
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane
17. bis(2-chloromethyl)ether (Deleted)
18. bis(2-chloroethyl)ether
19. 2-chloroethyl vinyl ether (mixed)
20. 2-chloronaphthalene
21. 2,4,6-trichlorophenol
22. para-chloro meta-cresol
23. chloroform (trichloromethane)
24. 2-chlorophenol
25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene
28. 3,3'-dichlorobenzidene
29. 1,1-dichloroethylene
30. 1,2-trans-dichloroethylene
31. 2,4-dichloroprophenol
32. 1,2-dichloroprophenol
33. 1,3-dichloropropylene (1,3-dichloropropene)
34. 2,4-dimethylphenol
35. 2,4-dinitrotoluene
36. 2,6-dinitrotoluene
37. 1,2-diphenylhydrazine
38. ethylbenzene
39. fluoranthene
40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl)ether
43. bis(2-chloroethoxy)methane
45. methyl chloride (chloromethane)
46. methyl bromide (bromomethane)
47. bromoform (tribromomethane)
48. dichlorobromomethane
49. trichlorofluoromethane (Deleted)
50. dichlorodifluoromethane (Deleted)
51. chlorodibromomethane
52. hexachlorobutadiene
53. hexachlorocyclopentadiene
54. isophorone
55. naphthalene
56. nitrobenzene
57. 2-nitrophenol
58. 4-nitrophenol
59. 2,4-dinitrophenol
60. 4,6-dinitro-o-cresol
61. N-nitrosodimethylamine
62. N-nitrosodiphenylamine
63. N-nitrosodi-n-propylamine
64. pentachlorophenol
65. phenol
66. bis(2-ethylhexyl) phthalate
67. butyl benzyl phthalate
68. di-n-butyl phthalate
69. di-n-octyl phthalate
70. diethyl phthalate
71. dimethyl phthalate
72. benzo(a)anthracene (1,2-benzanthracene)
73. benzo(a)pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
75. benzo(k)fluoranthene (11,12-benzofluoranthene)
76. chrysene
77. acenaphthylene
78. anthracene
79. benzo(ghi)perylene (1,12-benzoperylene)
80. fluorene
81. phenanthrene
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)
84. pyrene
85. tetrachloroethylene
86. toluene
87. trichloroethylene
88. vinyl chloride (chloroethylene)
89. aldrin
90. dieldrin
91. chlordane (technical mixture and metabolites)
92. 4,4'-DDT
93. 4,4'-DDE (p,p'DDX)
94. 4,4'-DDD (p,p'TDE)
95. a-endosulfan-Alpha
96. b-endosulfan-Beta
97. endosulfan sulfate
98. endrin
99. endrin aldehyde
100. heptachlor
101. heptachlor epoxide
102. a-BHC-Alpha
103. b-BHC-Beta
105. g-BHC-Delta
106. PCB-1242 (Arochlor 1242)
107. PCB-1254 (Arochlor 1254)
108. PCB-1221 (Arochlor 1221)
109. PCB-1232 (Arochlor 1232)
110. PCB-1248 (Arochlor 1248)
111. PCB-1260 (Arochlor 1260)
112. PCB-1016 (Arochlor 1016)
113. toxaphene
116. asbestos (fibrous)
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

(g) Subpart T—Secondary Molybdenum and Vanadium Subcategory

1. acenaphthene
2. acrolein
3. acrylonitrile
4. benzene
5. benzidene
6. carbon tetrachloride (tetrachloromethane)
7. chlorobenzene
8. 1,2,4-trichlorobenzene
9. hexachlorobenzene
10. 1,2-dichloroethane
11. 1,1,1-trichloroethane
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane
17. bis(2-chloromethyl)ether (Deleted)
18. bis(2-chloroethyl)ether
19. 2-chloroethyl vinyl ether (mixed)
20. 2-chloronaphthalene
21. 2,4,6-trichlorophenol
22. para-chloro meta-cresol

24. 2-chlorophenol
25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene
28. 3,3'-dichlorobenzidene
29. 1,1-dichloroethylene
30. 1,2-trans-dichloroethylene
31. 2,4-dichlorophenol
32. 1,2-dichloropropane
33. 1,3-dichloropropylene (1,3-dichloropropene)
34. 2,4-dimethylphenol
35. 2,4-dinitrotoluene
36. 2,6-dinitrotoluene
37. 1,2-diphenylhydrazine
38. ethylbenzene
39. fluoranthene
40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl)ether
43. bis(2-chloroethoxy)methane
46. methyl bromide (bromomethane)
47. bromoform (tribromomethane)
48. dichlorobromomethane
49. trichlorofluoromethane (Deleted)
50. dichlorodifluoromethane (Deleted)
51. chlorodibromomethane
52. hexachlorobutadiene
53. hexachlorocyclopentadiene
54. isophorone
56. nitrobenzene
57. 2-nitrophenol
58. 4-nitrophenol
59. 2,4-dinitrophenol
60. 4,6-dinitro-o-cresol
61. N-nitrosodimethylamine
62. N-nitrosodiphenylamine
63. N-nitrosodi-n-propylamine
64. pentachlorophenol
65. phenol
66. bis(2-ethylhexyl)phthalate
67. butyl benzyl phthalate
68. di-n-butyl phthalate
69. di-n-octyl phthalate
71. dimethyl phthalate
72. benzo(a)anthracene (1,2-benzanthracene)
73. benzo(a)pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
75. benzo(k)fluoranthene (11,12-benzofluoranthene)
76. chrysene
77. acenaphthylene
78. anthracene
79. benzo(ghi)perylene (1,12-benzoperylene)
80. fluorene
81. phenanthrene
82. dibenzo (a,h)antracene (1,2,5,6-dibenzanthracene)
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)
84. pyrene
85. tetrachloroethylene
86. toluene
87. trichloroethylene
88. vinyl chloride (chloroethylene)
89. aldrin
90. dieldrin
91. chlordane (technical mixture and metabolites)
92. 4,4'-DDT
93. 4,4'-DDE (p,p'DDX)
94. 4,4'-DDD (p,p'TDE)
95. a-endosulfan-Alpha
96. b-endosulfan-Beta
97. endosulfan sulfate
98. endrin
99. endrin aldehyde
100. heptachlor
101. heptachlor epoxide
102. a-BHC-Alpha
103. b-BHC-Beta
104. r-BHC (lindane)-Gamma
105. g-BHC-Delta
106. PCB-1242 (Arochlor 1242)
107. PCB-1254 (Arochlor 1254)
108. PCB-1221 (Arochlor 1221)
109. PCB-1232 (Arochlor 1232)
110. PCB-1248 (Arochlor 1248)
111. PCB-1260 (Arochlor 1260)
112. PCB-1016 (Arochlor 1016)
113. toxaphene
116. asbestos (fibrous)

(h) Subpart U—Primary Nickel and Cobalt Subcategory

1. acenaphthene
2. acrolein
3. acrylonitrile
5. benzidene
6. carbon tetrachloride (tetrachloromethane)
7. chlorobenzene
8. 1,2,4-trichlorobenzene
9. hexachlorobenzene
10. 1,2-dichloroethane
11. 1,1,1-trichloroethane
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane
17. bis(2-chloromethyl)ether (Deleted)
18. bis(2-chloroethyl)ether
19. 2-chloroethyl vinyl ether (mixed)
20. 2-chloronaphthalene
21. 2,4,6-trichlorophenol
22. para-chloro meta-cresol
23. chloroform (trichloromethane)
24. 2-chlorophenol
25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene
28. 3,3'-dichlorobenzidene
29. 1,1-dichloroethylene
30. 1,2-trans-dichloroethylene
31. 2,4-dichlorophenol
32. 1,2-dichloropropane
33. 1,3-dichloropropylene (1,3-dichloropropene)
34. 2,4-dimethylphenol
35. 2,4-dinitrotoluene
36. 2,6-dinitrotoluene
37. 1,2-diphenylhydrazine
38. ethylbenzene
39. fluoranthene
40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl)ether
43. bis(2-chloroethoxy)methane
44. methylene chloride (dichloromethane)
45. methyl chloride (chloromethane)
46. methyl bromide (bromomethane)
47. bromoform (tribromomethane)
48. dichlorobromomethane
49. trichlorofluoromethane (Deleted)
50. dichlorodifluoromethane (Deleted)
51. chlorodibromomethane
52. hexachlorobutadiene
53. hexachlorocyclopentadiene
54. isophorone
55. naphthalene
56. nitrobenzene
57. 2-nitrophenol
58. 4-nitrophenol
59. 2,4-dinitrophenol
60. 4,6-dinitro-o-cresol
61. N-nitrosodimethylamine
62. N-nitrosodiphenylamine
63. N-nitrosodi-n-propylamine
64. pentachlorophenol
65. phenol
67. butyl benzyl phthalate
68. di-n-butyl phthalate
69. di-n-octyl phthalate
70. diethyl phthalate
71. dimethyl phthalate
72. benzo(a)anthracene (1,2-benzanthracene)
73. benzo(a)pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
75. benzo(k)fluoranthene (11,12-benzofluoranthene)
76. chrysene
77. acenaphthylene
78. anthracene
79. benzo(ghi)perylene (1,12-benzoperylene)
80. fluorene
81. phenanthrene
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)
84. pyrene
85. tetrachloroethylene
87. trichloroethylene
88. vinyl chloride (chloroethylene)
89. aldrin
90. dieldrin
91. chlordane (technical mixture and metabolites)
92. 4,4'-DDT
93. 4,4'-DDE (p,p'DDX)
94. 4,4'-DDD (p,p'DDX)
95. a-endosulfan-Alpha
96. b-endosulfan-Beta
97. endosulfan sulfate
98. endrin
99. endrin aldehyde
100. heptachlor
101. heptachlor epoxide
102. a-BHC-Alpha
103. b-BHC-Beta

104. r-BHC (lindane)-Gamma
105. g-BHC-Delta
106. PCB-1242 (Arochlor 1242)
107. PCB-1254 (Arochlor 1254)
108. PCB-1221 (Arochlor 1221)
109. PCB-1232 (Arochlor 1232)
110. PCB-1248 (Arochlor 1248)
111. PCB-1260 (Arochlor 1260)
112. PCB-1216 (Arochlor 1216)
113. toxaphene
116. asbestos (fibrous)
121. cyanide*
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

*We did not analyze for this pollutant in samples of raw wastewater from this subcategory. This pollutant is not believed to be present based on the Agency's best engineering judgment which includes consideration of raw materials and process operations.

(i) Subpart V—Secondary Nickel Subcategory

1. acenaphthene*
2. acrolein*
3. acryolonitrile*
4. benzene*
5. benzidene*
6. carbon tetrachloride (tetrachloromethane)*
7. chlorobenzene*
8. 1,2,4-trichlorobenzene*
9. hexachlorobenzene*
10. 1,2-dichloroethane*
11. 1,1,1-trichloroethane*
12. hexachloroethane*
13. 1,1-dichloroethane*
14. 1,1,2-trichloroethane*
15. 1,1,2,2-tetrachloroethane*
16. chloroethane*
17. bis(2-chloromethyl)ether (Deleted)*
18. bis(2-chloroethyl)ether*
19. 2-chloroethyl vinyl either (mixed)*
20. 2-chloronaphthalene*
21. 2,4,6-trichlorophenol*
22. para-chloro meta-cresol*
23. chloroform (trichloromethane)*
24. 2-chlorophenol*
25. 1,2-dichlorobenzene*
26. 1,3-dichlorobenzene*
27. 1,4-dichlorobenzene*
28. 3,3'-dichlorobenzidene*
29. 1,1-dichloroethylene*
30. 1,2-trans-dichloroethylene*
31. 2,4-dichlorophenol*
32. 1,2-dichloropropane*
33. 1,3-dichloropropylene (1,3-dichloropropene)*
34. 2,4-dimethylphenol*
35. 2,4-dinitrotoluene*
36. 2,6-dinitrotoluene*
37. 1,2-diphenylhydrazine*
38. ethylbenzene*
39. fluoranthene*
40. 4-chlorophenyl phenyl ether*
41. 4-bromophenyl phenyl ether*
42. bis(2-chloroisopropyl) ether*
43. bis(2-chloroethoxy) methane*
44. methylene chloride (dichloromethane)*
45. methyl chloride (chloromethane)*
46. methyl bromide (bromomethane)*
47. bromoform (tribromomethane)*
48. dichlorobromomethane*
49. trichlorofluoromethane (Deleted)*
50. dichlorodifluoromethane (Deleted)*
51. chlorodibromomethane*
52. hexachlorobutadiene*
53. hexachlorocyclopentadiene*
54. isophorone*
55. naphthalene*
56. nitrobenzene*
57. 2-nitrophenol*
58. 4-nitrophenol*
59. 2,4-dinitrophenol*
60. 4,6-dinitro-o-cresol*
61. N-nitrosodimethylamine*
62. N-nitrosodiphenylamine*
63. N-nitrosodi-n-propylamine*
64. pentachlorophenol*
65. phenol*
66. bis(2-ethylhexyl) phthalate*
67. butyl benzyl phthalate*
68. di-n-butyl phthalate*
69. di-n-octyl phthalate*
70. diethyl phthalate*
71. dimethyl phthalate*
72. benzo(a)anthracene (1,2-benzanthracene)*
73. benzo(a)pyrene (3,4-benzopyrene)*
74. 3,4-benzofluoranthene*
75. benzo(k)fluoranthene (11,12-benzofluoranthene)*
76. chrysene*
77. acenaphthylene*
78. anthracene*
79. benzo(ghi)perylene (1,12-benzoperylene)*
80. fluorene*
81. phenanthrene*
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)*
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)*
84. pyrene*
85. tetrachloroethylene*
86. toluene*
87. trichloroethylene*
88. vinyl chloride (chloroethylene)*
89. aldrin*
90. dieldrin*
91. chlordane (technical mixture and metabolites)*
92. 4,4'-DDT*
93. 4,4'-DDE (p,p'DDX)*
94. 4,4'-DDD (p,p'TDE)*
95. a-endosulfan-Alpha*
96. b-endosulfan-Beta*
97. endosulfan sulfate*
98. endrin*
99. endrin aldehyde*
100. heptachlor*
101. heptachlor epoxide*
102. a-BHC-Alpha*
103. b-BHC-Beta*
104. r-BHC (lindane)-Gamma*
105. g-BHC-Delta*
106. PCB-1242 (Arochlor 1242)*
107. PCB-1254 (Arochlor 1254)*
108. PCB-1221 (Arochlor 1221)*
109. PCB-1232 (Arochlor 1232)*
110. PCB-1248 (Arochlor 1248)*
111. PCB-1260 (Arochlor 1260)*
112. PCB-1016 (Arochlor 1016)*
113. toxaphene*
116. asbestos (fibrous)
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

*We did not analyze for these pollutants in samples of raw wastewater from this subcategory. These pollutants are not believed to be present based on the Agency's best engineering judgment which includes consideration of raw materials and process operations.

(j) Subpart W—Primary Precious Metals and Mercury Subcategory

1. acenaphthene
2. acrolein
3. acrylonitrile
5. benzidene
6. carbon tetrachloride (tetrachloromethane)
7. chlorobenzene
8. 1,2,4-trichlorobenzene
9. hexachlorobenzene
10. 1,2-dichloroethane
11. 1,1,1-trichloroethane
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane
17. bis(2-chloromethyl)ether (Deleted)
18. bis(2-chloroethyl)ether
19. 2-chloroethyl vinyl ether (mixed)
20. 2-chloronaphthalene
21. 2,4,6-trichlorophenol
22. para-chloro meta-cresol
23. chloroform
24. 2-chlorophenol
25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene
28. 3,3'-dichlorobenzidene
29. 1.1-dichloroethylene
30. 1,2-trans-dichloroethylene
31. 2,4-dichlorophenol
32. 1,2-dichloropropane
33. 1,3-dichloropropylene (1,3-dichloropropene)
34. 2,4-dimethylphenol
35. 2,4-dinitrotoluene
36. 2,6-dinitrotoluene
37. 1,2-diphenylhydrazine
38. ethylbenzene
39. fluoranthene
40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl)ether
43. bis(2-chloroethoxy)methane
45. methyl chloride (chloromethane)
46. methyl bromide (bromomethane)
47. bromoform (tribromomethane)

48. dichlorobromomethane
49. trichlorofluoromethane (Deleted)
50. dichlorodifluoromethane (Deleted)
51. chlorodibromomethane
52. hexachlorobutadiene
53. hexachlorocyclopentadiene
54. isophorone
55. naphthalene
56. nitrobenzene
57. 2-nitrophenol
58. 4-nitrophenol
59. 2,4-dinitrophenol
60. 4,6-dinitro-o-cresol
61. N-nitrosodimethylamine
62. N-nitrosodiphenylamine
63. N-nitrosodi-n-propylamine
64. pentachlorophenol
67. butyl benzyl phthalate
69. di-n-octyl phthalate
71. dimethyl phthalate
72. benzo(a)anthracene (1,2-benzanthracene)
73. benzo(a)pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
75. benzo(k)fluoranthene (11,12-benzofluoranthene)
76. chrysene
77. acenaphthylene
79. benzo(ghi)perylene (1,12-benzoperylene)
80. fluorene
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)
83. ideno (1,2,3-cd)pyrene (2,3-o-phenylenepyrene)
84. pyrene
85. tetrachloroethylene
87. trichloroethylene
88. vinyl chloride (chloroethylene)
89. aldrin
90. dieldrin
91. chlordane (technical mixture and metabolites)
92. 4,4'-DDT
93. 4,4'-DDE (p,p'DDX)
94. 4,4'-DDD (p,p'TDE)
95. a-endosulfan-Alpha
96. b-endosulfan-Beta
97. endosulfan sulfate
98. endrin
99. endrin aldehyde
100. heptachlor
101. heptachlor epoxide
102. a-BHC-Alpha
103. b-BHC-Beta
104. r-BHC (lindane)-Gamma
105. g-BHC-Delta
106. PCB-1242 (Arochlor 1242)
107. PCB-1254 (Arochlor 1254)
108. PCB-1221 (Arochlor 1221)
109. PCB-1232 (Arochlor 1232)
110. PCB-1248 (Arochlor 1248)
111. PCB-1260 (Arochlor 1260)
112. PCB-1016 (Arochlor 1016)
113. toxaphene
116. asbestos (fibrous)
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

(k) Subpart X—Secondary Precious Metals Subcategory

1. acenaphthene
2. acrolein
3. acrylonitrile
5. benzidene
8. 1,2,4-trichlorobenzene
9. hexachlorobenzene
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane
17. bis(2-chloromethyl)ether (Deleted)
18. bis(2-chloroethyl)ether
19. 2-chloroethyl vinyl ether (mixed)
20. 2-chloronaphthalene
22. para-chloro meta-cresol
25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene
28. 3,3'-dichlorobenzidene
29. 1,1-dichloroethylene
30. 1,2-trans-dichloroethylene
31. 2,4-dichlorophenol
32. 1,2-dichloropropane
33. 1,3-dichloropropylene (1,3-dichloropropene)
35. 2,4-dinitrotoluene
36. 2,6-dinitrotoluene
37. 1,2-diphenylhydrazine
38. ethylbenzene
39. fluoranthene
40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl)ether
43. bis(2-chloroethoxy)methane
45. methyl chloride (chloromethane)
46. methyl bromide (bromomethane)
49. trichlorofluoromethane (Deleted)
50. dichlorodifluoromethane (Deleted)
52. hexachlorobutadiene
53. hexachlorocyclopentadiene
55. naphthalene
56. nitrobenzene
58. 4-nitrophenol
59. 2,4-dinitrophenol
60. 4,6-dinitro-o-cresol
61. N-nitrosodimethylamine
63. N-nitrosodi-n-propylamine
64. pentachlorophenol
67. butyl benzyl phthalate
72. benzo(a)anthracene (1,2-benzanthracene)
73. benzo(a)pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
75. benzo(k)fluoranthene (11,12-benzofluoranthene)
76. chrysene
77. acenaphthylene
78. anthracene
79. benzo(ghi)perylene (1,12-benzoperylene)
80. fluorene
81. phenanthrene
82. dibenzo(a,h)anthracene (1,2,5,6-dibenzanthracene)
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenlyenepyrene)
84. pyrene
85. tetrachloroethylene
87. trichloroethylene
88. vinly chloride (chloroethylene)
89. aldrin*
90. dieldrin*
91. chlordane (technical mixture and metabolites)*
92. 4,4'-DDT*
93. 4,4'-DDE (p,p'DDX)*
94. 4,4'-DDD (p,p'TDE)*
95. a-endosulfan-Alpha*
96. b-endosulfan-Beta*
97. endosulfan sulfate*
98. endrin*
99. endrin aldehyde*
100. heptachlor*
101. heptachlor epoxide*
102. a-BHC-Alpha*
103. b-BHC-Beta*
104. r-BHC (lindane)-Gamma*
105. g-BHC-Delta*
106. PCB-1242 (Arochlor 1242)*
107. PCB-1254 (Arochlor 1254)*
108. PCB-1221 (Arochlor 1221)*
109. PCB-1232 (Arochlor 1232)*
110. PCB-1248 (Arochlor 1248)*
111. PCB-1260 (Arochlor 1260)*
112. PCB-1016 (Arochlor 1016)*
113. toxaphene*
116. asbestos (fibrous)
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

*We did not analyze for these pollutants in samples of raw wastewater from this subcategory. These pollutants are not believed to be present based on the Agency's best engineering judgment which includes consideration of raw materials and process operations.

(1) Subpart Y—Primary Rare Earth Metals Subcategory

1. acenaphthene
2. acrolein
3. acrylonitrile
5. benzidene
8. 1,2,4-trichlorobenzene
10. 1,2-dichloroethane
11. 1,1,1-trichloroethane
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane
17. bis(2-chloromethyl)ether (Deleted)
18. bis(2-chloroethyl)ether
19. 2-chloroethyl vinyl ether (mixed)
20. 2-chloronaphthalene
22. para-chloro meta-cresol
24. 2-chlorophenol
25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene
28. 3,3'-dichlorobenzidene
29. 1,1-dichloroethylene
30. 1,2-trans-dichloroethylene
31. 2,4-dichlorophenol

32. 1,2-dichloropropane
33. 1,3-dichloropropylene (1,3-dichloropropene)
34. 2,4-dimethylphenol
35. 2,4-dinitrotoluene
36. 2,6-dinitrotoluene
37. 1,2-diphenylhydrazine
38. ethylbenzene
39. fluoranthene
40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl)ether
43. bis(2-chloroethoxy)methane
45. methyl chloride (chlorómethane)
46. methyl bromide (bromomethane)
50. dichlorodifluoromethane (Deleted)
52. hexachlorobutadiene
53. hexachlorocyclopentadiene
54. isophorone
55. naphthalene
56. nitrobenzene
57. 2-nitrophenol
58. 4-nitrophenol
59. 2,4-dinitrophenol
60. 4,6-dinitro-o-cresol
61. N-nitrosodimethylamine
62. N-nitrosodiphenylamine
63. N-nitrosodi-n-propylamine
64. pentachlorophenol
67. butyl benzyl phthalate
68. di-n-butyl phthalate
69. di-n-octyl phthalate
70. diethyl phthalate
71. dimethyl phthalate
72. benzo(a)anthracene (1,2-benzanthracene)
73. benzo(a)pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
75. benzo(k)fluoranthene (11,12-benzofluoranthene)
76. chrysene
77. acenaphthylene
78. anthracene
79. benzo(ghi)perylene (1,12-benzoperylene)
80. fluorene
81. phenanthrene
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)
84. pyrene
85. tetrachloroethylene
87. trichloroethylene
88. vinyl chloride (chloroethylene)
89. aldrin
90. dieldrin
91. chlordane (technical mixture and metabolites)
92. 4,4'-DDT
93. 4,4'-DDE (p,p'DDX)
94. 4,4'-DDD (p,p'TDE)
95. a-endosulfan-Alpha
96. b-endosulfan-Beta
97. endosulfan sulfate
98. endrin
99. endrin aldehyde
100. heptachlor
101. heptachlor expoxide
102. a-BHC-Alpha
103. b-BHC-Beta
104. r-BHC (lindane)-Gamma
105. g-BHC-Delta
106. PCB–1242 (Arochlor 1242)
107. PCB–1254 (Arochlor 1254)
108. PCB–1221 (Arochlor 1221)
109. PCB–1232 (Arochlor 1232)
110. PCB–1248 (Arochlor 1248)
111. PCB–1260 (Arochlor 1260)
112. PCB–1016 (Arochlor 1016)
113. toxaphene
116. asbestos (fibrous)
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

(m) Subpart Z—Secondary Tantalum Subcategory

1. acenaphthene*
2. acrolein*
3. acrylonitrile*
4. benzene*
5. benzidene*
6. carbon tetrachloride (tetrachloromethane)*
7. chlorobenzene*
8. 1,2,4-trichlorobenzene*
9. hexachlorobenzene*
10. 1,2-dichloroethane*
11. 1,1,1-trichloroethane*
12. hexachloroethane*
13. 1,1-dichloroethane*
14. 1,1,2-trichloroethane*
15. 1,1,2,2-tetrachloroethane*
16. chloroethane*
17. bis(2-chloromethyl)ether (Deleted)*
18. bis(2-chloroethyl)ether*
19. 2-chloroethyl vinyl ether (mixed)*
20. 2-chloronaphthalene*
21. 2,4,6-trichlorophenol*
22. para-chloro meta-cresol*
23. chloroform (trichloromethane)*
24. 2-chlorophenol*
25. 1,2-dichlorobenzene*
26. 1,3-dichlorobenzene*
27. 1,4-dichlorobenzene*
28. 3,3'-dichlorobenzidene*
29. 1,1-dichloroethylene*
30. 1,2-trans-dichloroethylene*
31. 2,4-dichlorophenol*
32. 1,2-dichloropropane*
33. 1,3-dichloropropylene (1,3-dichloropropene)*
34. 2,4-dimethylphenol*
35. 2,4-dinitrotoluene*
36. 2,6-dinitrotoluene*
37. 1,2-diphenylhydrazine*
38. ethylbenzene*
39. fluoranthene*
40. 4-chlorophenyl phenyl ether*
41. 4-bromophenyl phenyl ether*
42. bis(2-chloroisopropyl)ether*
43. bis(2-chloroethoxy)methane*
44. methylene chloride (dichloromethane)*
45. methyl chloride (chloromethane)*
46. methyl bromide (bromomethane)*
47. bromoform (tribromomethane)*
48. dichlorobromomethane*
49. trichlorofluoromethane (Deleted)*
50. dichlorodifluoromethane (Deleted)*
51. chlorodibromomethane*
52. hexachlorobutadiene*
53. hexachlorocyclopentadiene*
54. isophorone*
55. naphthalene*
56. nitrobenzene*
57. 2-nitrophenol*
58. 4-nitrophenol*
59. 2,4-dinitrophenol*
60. 4,6-dinitro-o-cresol*
61. N-nitrosodimethylamine*
62. N-nitrosodiphenylamine*
63. N-nitrosodi-n-propylamine*
64. pentachlorophenol*
65. phenol*
66. bis(2-ethylhexyl) phthalate*
67. butyl benzyl phthalate*
68. di-n-butyl phthalate*
69. di-n-octyl phthalate*
70. diethyl phthalate*
71. dimethyl phthalate*
72. benzo(a)anthracene (1,2-benzanthracene)*
73. benzo(a)pyrene (3,4-benzopyrene)*
74. 3,4-benzofluoranthene*
75. benzo(k)fluoranthene (11,12-benzofluoranthene)*
76. chrysene*
77. acenaphthylene*
78. anthracene*
79. benzo(ghi)perylene (1,12-beuozopnerylene)*
80. flourene*
81. phenanthrene*
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)*
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)*
84. pyrene*
85. tetrachloroethylene*
86. toluene*
87. trichloroethylene*
88. vinyl chloride (chloroethylene)*
89. aldrin*
90. dieldrin*
91. chlordane (technical mixture and metabolites)*
92. 4,4'-DDT*
93. 4,4'-DDE (p,p'DDX)*
94. 4,4'-DDD (p,p'TDE)*
95. a-endosulfane-Alpha*
96. b-endosulfane-Beta*
97. endosulfan sulfate*
98. endrin*
99. endrin aldehyde*
100. heptachlor*
101. heptachlor epoxide*
102. a-BHC-Alpha*
103. b-BHC-Beta*
104. r-BHC (lindane)-Gamma*
105. g-BHC-Delta*
106. PCB–1242 (Arochlor 1242)*
107. PCB–1254 (Arochlor 1254)*
108. PCB–1221 (Arochlor 1221)*
109. PCB–1232 (Arochlor 1232)*
110. PCB–1248 (Arochlor 1248)*

111. PCB–1260 (Arochlor 1260)*
112. PCB–1016 (Arochlor 1016)*
113. toxaphene*
116. asbestos (fibrous)
121. cyanide (total)*
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCCD)

*We did not analyze for these pollutants in samples of raw wastewater from this subcategory. These pollutants are not believed to be present based on the Agency's best engineering judgment which includes consideration of raw materials and process operations.

(n) Subpart AA—Secondary Tin Subcategory

1. acenaphthene
2. acrolein
3. acrylonitrile
5. benzidene
6. carbon tetrachloride (tetrachloromethane)
7. chlorobenzene
8. 1,2,4-trichlorobenzene
10. 1,2-dichloroethane
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane
17. bis(2-chloromethyl)ether (Deleted)
18. bis(2-chloroethyl)ether
19. 2-chloroethyl vinyl ether (mixed)
20. 2-chloronaphthalene
21. 2,4,6-trichlorophenol
22. para-chloro meta-cresol
24. 2-chlorophenol
25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene
28. 3,3'-dichlorobenzidene
30. 1,2-trans-dichloroethylene
31. 2,4-dichlorophenol
32. 1,2-dichloropropane
33. 1,3-dichloropropylene (1,3-dichloropropene)
35. 2,4-dinitrotoluene
36. 2,6-dinitrotoluene
40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl)ether
43. bis(2-chloroethoxy)methane
45. methyl chloride (chloromethane)
46. methyl bromide (bromomethane)
47. bromoform (tribromomethane)
48. dichlorobromomethane
49. trichlorofluoromethane (Deleted)
50. dichlorodifluoromethane (Deleted)
51. chlorodibromomethane
52. hexachlorobutadiene
53. hexachlorocyclopentadiene
54. isophorone
56. nitrobenzene
60. 4,6-dinitro-o-cresol
61. N-nitrosodimethylamine
63. N-nitrosodi-n-propylamine
64. pentachlorophenol
69. di-n-octyl phthalate
70. diethyl phthalate
71. dimethyl phthalate
72. benzo(a)anthracene (1,2-benzanthracene)
73. benzo(a)pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
75. benzo(k)fluoranthene (11,12-benzofluoranthene)
76. chrysene
77. acenaphthylene
79. benzo(ghi)perylene (1,12-benzoperylene)
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)
85. tetrachloroethylene
89. aldrin
90. dieldrin
91. chlordane (technical mixture and metabolites)
92. 4,4'-DDT
93. 4,4'-DDE (p,p'DDX)
94. 4,4'-DDD (p,p'TDE)
95. a-endosulfan-Alpha
96. b-endosulfan-Beta
97. endosulfan sulfate
98. endrin
99. endrin aldehyde
100. heptachlor
101. heptachlor epoxide
102. a-BHC-Alpha
103. b-BHC-Beta
104. r-BHC (lindane)-Gamma
105. g-BHC-Delta
106. PCB–1242 (Arochlor 1242)
107. PCB–1254 (Arochlor 1254)
108. PCB–1221 (Arochlor 1221)
109. PCB–1232 (Arochlor 1232)
110. PCB–1248 (Arochlor 1248)
111. PCB–1260 (Arochlor 1260)
112. PCB–1016 (Arochlor 1016)
113. toxaphene
116. asbestos (fibrous)
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

(o) Subpart AB—Primary and Secondary Titanium Subcategory

1. acenaphthene
2. acrolein
3. acrylonitrile
5. benzidene
6. carbon tetrachloride (tetrachloromethane)
7. chlorobenzene
8. 1,2,4-trichlorobenzene
9. hexachlorobenzene
10. 1,2-dichloroethane
12. hexachloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachlorethane
16. chloroethane
17. bis(2-chloromethyl)ether (Deleted)
18. bis(2-chloroethyl)ether
19. 2-chloroethyl vinyl ether (mixed)
20. 2-chloronaphthalene
22. para-chloro meta-cresol
24. 2-chlorophenol
25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene
28. 3,3'-dichlorobenzidene
29. 1,1-dichloroethylene
30. 1,2-trans-dichloroethylene
32. 1,2-dichloropropane
33. 1,3-dichloropropylene (1,3-dichloropropene)
34. 2,4-dimethylphenol
35. 2,4-dinitrotoluene
37. 1,2-diphenylhydrazine
38. ethylbenzene
39. fluoranthene
40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl)ether
43. bis(2-chloroethoxy)methane
45. methyl chloride (chloromethane)
46. methyl bromide (bromomethane)
47. bromoform (tribromomethane)
49. trichlorofluoromethane (Deleted)
50. dichlorodifluoromethane (Deleted)
52. hexachlorobutadiene
53. hexachlorocyclopentadiene
54. isophorone
55. naphthalene
56. nitrobenzene
58. 4-nitrophenol
59. 2,4-dinitrophenol
60. 4,6-dinitro-o-cresol
61. N-nitrosodimethylamine
62. N-nitrosodiphenylamine
63. N-nitrosodi-n-propylamine
72. benzo(a)anthracene (1,2-benzanthracene)
73. benzo(a)pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
76. chrysene
77. acenaphthylene
78. anthracene
79. benzo(ghi)perylene (1,12-benzoperylene)
80. fluorene
81. phenanthrene
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)
84. pyrene
85. tetrachloroethylene
89. aldrin
90. dieldrin
91. chlordane (technical mixture and metabolites)
92. 4,4'-DDT
93. 4,4'-DDE (p,p'DDX)
96. b-endosulfan-Beta
97. endosulfan sulfate
98. endrin
99. endrin aldehyde
100. heptachlor
101. heptachlor epoxide
104. r-BHC (lindane)-Gamma
105. g-BHC-Delta
106. PCB–1242 (Arochlor 1242)
108. PCB–1221 (Arochlor 1221)
109. PCB–1232 (Arochlor 1232)

110. PCB-1248 (Arochlor 1248)
111. PCB-1260 (Arochlor 1260)
112. PCB-1016 (Arochlor 1016)
113. toxaphene
116. asbestos (fibrous)
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

(p) Subpart AC—Secondary Tungsten and Cobalt Subcategory

1. acenaphthene*
2. acrolein*
3. acrylonitrile*
4. benzene*
5. benzidene*
6. carbon tetrachloride (tetrachloromethane)*
7. chlorobenzene*
8. 1,2,4-trichlorobenzene*
9. hexachlorobenzene*
10. 1,2-dichloroethane*
11. 1,1,1-trichloroethane*
12. hexachloroethane*
13. 1,1-dichloroethane*
14. 1,1,2-trichloroethane*
15. 1,1,2,2-tetrachloroethane*
16. chloroethane*
17. bis(2-chloromethyl)ether (Deleted)*
18. bis(2-chloroethyl)ether*
19. 2-chloroethyl vinyl either (mixed)*
20. 2-chloronaphthalene*
21. 2,4,6-trichlorophenol*
22. para-chloro meta-cresol*
23. chloroform (trichloromethane)*
24. 2-chlorophenol*
25. 1,2-dichlorobenzene*
26. 1,3-dichlorobenzene*
27. 1,4-dichlorobenzene*
28. 3,3'-dichlorobenzene*
29. 1,1-dichloroethylene*
30. 1,2-trans-dichloroethylene*
31. 2,4-dichlorophenol*
32. 1,2-dichloropropane*
33. 1,3-dichloropropylene (1,3-dichloropropene)*
34. 2,4-dimethylphenol*
35. 2,4-dinitrotoluene*
36. 2,6-dinitrotoluene*
37. 1,2-diphenylhydrazine*
38. ethylbenzene*
39. fluoranthene*
40. 4-chlorophenyl phenyl ether*
41. 4-bromophenyl phenyl ether*
42. bis(2-chloroisopropyl)ether*
43. bis(2-chloroethoxy)methane*
44. methylene chloride (dichloromethane)*
45. methyl chloride (chloromethane)*
46. methyl bromide (bromomethane)*
47. bromoform (tribromomethane)*
48. dichlorobromomethane*
49. trichlorofluoromethane (Deleted)*
50. dichlorodifluoromethane (Deleted)*
51. chlorodibromomethane*
52. hexachlorobutadiene*
53. hexachlorocyclopentadiene*
54. isophorone*
55. naphthalene*
56. nitroberzene*
57. 2-nitrophenol*
58. 4-nitrophenol*
59. 2,4-dinitrophenol*
60. 4,6-dinitro-o-cresol*
61. N-nitrosodimethylamine*
62. N-nitrosodiphenylamine*
63. N-nitrosodi-n-propylamine*
64. pentachlorophenol*
65. phenol*
66. bis(2-ethylhexyl) phthalate*
67. butyl benzyl phthalate*
68. di-n-butyl phthalate*
69. di-n-octyl phthalate*
70. diethyl phthalate*
71. dimethyl phthalate*
72. benzo(a)anthracene (1,2-benzanthracene)*
73. benzo(a)pyrene (3,4-benzopyrene)*
74. 3,4-benzofluoranthene*
75. benzo(k)fluoranthene (11,12-benzofluoranthene)*
76. chrysene*
77. acenaphthylene*
78. anthracene*
79. benzo(ghi)perylene (1,12-benzoperylene)*
80. fluorene*
81. phenanthrene*
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)*
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)*
84. pyrene*
85. tetrachloroethylene*
86. toluene*
87. trichloroethylene*
88. vinyl chloride (chloroethylene)*
89. aldrin*
90. dieldrin*
91. chlordane (technical mixture and metabolites)*
92. 4,4'-DDT*
93. 4,4'-DDE (p,p'DDX)*
94. 4,4'-DDD (p,p'TDE)*
95. a-endosulfan-Alpha*
96. b-endosulfan-Beta*
97. endosulfan sulfate*
98. endrin*
99. endrin aldehyde*
100. heptachlor*
101. heptachlor epoxide*
102. a-BHC-Alpha*
103. b-BHC-Beta*
104. r-BHC (lindane)-Gamma*
105. g-BHC-Delta*
106. PCB-1242 (Arochlor 1242)*
107. PCB-1254 (Arochlor 1254)*
108. PCB-1221 (Arochlor 1221)*
109. PCB-1232 (Arochlor 1232)*
110. PCB-1248 (Arochlor 1248)*
111. PCB-1260 (Arochlor 1260)*
112. PCB-1016 (Arochlor 1016)*
113. toxaphene*
116. asbestos (fibrous)
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

*We did not analyze for these pollutants in samples of raw wastewater from this subcategory. These pollutants are not believed to be present based on the Agency's best engineering judgment which includes consideration of raw materials and process operations.

(q) Subpart AD—Secondary Uranium Subcategory

1. acenaphthene*
2. acrolein*
3. acrylonitrile*
4. benzene*
5. benzidene*
6. carbon tetrachloride (tetrachloromethane)*
7. chlorobenzene*
8. 1,2,4-trichlorobenzene*
9. hexachlorobenzene*
10. 1,2-dichloroethane*
11. 1,1,1-trichloroethane*
12. hexachloroethane*
13. 1,1-dichloroethane*
14. 1,1,2-trichloroethane*
15. 1,1,2,2-tetrachloroethane*
16. chloroethane*
17. bis(2-chloromethyl)ether (Deleted)*
18. bis(2-chloroethyl)ether*
19. 2-chloroethyl vinyl ether (mixed)*
20. 2-chloronaphthalene*
21. 2,4,6-trichlorophenol*
22. para-chloro meta-cresol*
23. chloroform (trichloromethane)*
24. 2-chlorophenol*
25. 1,2-dichlorobenzene*
26. 1,3-dichlorobenzene*
27. 1,4-dichlorobenzene*
28. 3,3'-dichlorobenzidene*
29. 1,1-dichloroethylene*
30. 1,2-trans-dichloroethylene*
31. 2,4-dichlorophenol*
32. 1,2-dichloropropane*
33. 1,3-dichloropropylene (1,3-dichloropropene)*
34. 2,4-dimethylphenol*
35. 2,4-dinitrotoluene*
36. 2,6-dinitrotoluene*
37. 1,2-diphenylhydrazine*
38. ethylbenzene*
39. fluoranthene*
40. 4-chlorophenyl phenyl ether*
41. 4-bromophenyl phenyl ether*
42. bis(2-chloroisopropyl)ether*
43. bis(2-chloroethoxy)methane*
44. methylene chloride (dichloromethane)*
45. methyl chloride (chloromethane)*
46. methyl bromide (bromomethane)*
47. bromoform (tribromomethane)*
48. dichlorobromomethane*
49. trichlorofluoromethane (Deleted)*
50. dichlorodifluoromethane (Deleted)*
51. chlorodibromomethane*
52. hexachlorobutadiene*
53. hexachlorocyclopentadiene*
54. isophorone*
55. naphthalene*
56. nitrobenzene*
57. 2-nitrophenol*

58. 4-nitrophenol*
59. 2,4-dinitrophenol*
60. 4,6-dinitro-o-cresol*
61. N-nitrosodimethylamine*
62. N-nitrosodiphenylamine*
63. N-nitrosodi-n-propylamine*
64. pentachlorophenol*
65. phenol*
66. bis(2-ethylhexyl) phthalate*
67. butyl benzyl phthalate*
68. di-n-butyl phthalate*
69. di-n-octyl phthalate*
70. diethyl phthalate*
71. dimethyl phthalate*
72. benzo(a)anthracene (1,2-benzanthracene)*
73. benzo(a)pyrene (3,4-benzopyrene)*
74. 3,4-benzofluoranthene*
75. benzo (k)fluoranthene (11,12-benzofluoranthene)*
76. chrysene*
77. acenaphthylene*
78. anthracene*
79. benzo(ghi)perylene (1,12-benzoperylene)*
80. fluorene*
81. phenanthrene*
82. dibernzo (a,h)anthracene (1,2,5,6-dibenzathracene)*
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)*
84. pyrene*
85. tetrachloroethylene*
86. toluene*
87. trichloroethylene*
88. vinyl chloride (chloroethylene)*
89. aldrin*
90. dieldrin*
91. chlordane (technical mixture and metabolites)*
92. 4,4'-DDT*
93. 4,4'-DDE (p,p'DDX)*
94. 4,4'-DDD (p,p'TDE)*
95. a-endosulfan-Alpha*
96. b-endosulfan-Beta*
97. endosulfan sulfate*
98. endrin*
99. endrin aldehyde*
100. heptachlor*
101. heptachlor epoxide*
102. a-BHC-Alpha*
103. b-BHC-Beta*
104. r-BHC (lindane)-Gamma*
105. g-BHC-Delta*
106. PCB-1242 (Arochlor 1242)*
107. PCB-1254 (Arochlor 1254)*
108. PCB-1221 (Arochlor 1221)*
109. PCB-1232 (Arochlor 1232)*
110. PCB-1248 (Arochlor 1248)*
111. PCB-1260 (Arochlor 1260)*
112. PCB-1016 (Arochlor 1016)*
113. toxaphene*
116. asbestos (fibrous)
121. cyanide (total)*
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

* We did not analyze for these pollutants in samples of raw wastewater from this subcategory. These pollutants are not believed to be present based on the Agency's best engineering judgment which includes consideration of raw materials and process operations.

(r) Subpart AE—Primary Zirconium and Hafnium Subcategory

1. acenaphthene
2. acrolein
3. acrylonitrile
4. benzene
5. benzidene
6. carbon tetrachloride (tetrachloromethane)
7. chlorobenzene
8. 1,2,4-trichlorobenzene
9. hexachlorobenzene
10. 1,2-dichloroethane
11. 1,1,1-trichloroethane
12. hexachloroethane
13. 1,1-dichloroethane
14. 1,1,2-trichloroethane
15. 1,1,2,2-tetrachloroethane
16. chloroethane
17. bis(2-chloromethyl)ether (Deleted)
18. bis(2-chloroethyl)ether
19. 2-chloroethyl vinyl ether (mixed)
20. 2-chloronaphthalene
21. 2,4,6-trichlorophenol
22. para-chloro meta-cresol
24. 2-chlorophenol
25. 1,2-dichlorobenzene
26. 1,3-dichlorobenzene
27. 1,4-dichlorobenzene
28. 3,3'-dichlorobenzidene
29. 1,1-dichloroethylene
30. 1,2-trans-dichloroethylene
31. 2,4-dichlorophenol
32. 1,2-dichloropropane
33. 1,3-dichloropropylene (1,3-dichloropropene)
34. 2,4-dimethylphenol
35. 2,4-dinitrotoluene
36. 2,6-dinitrotoluene
37. 1,2-diphenylhydrazine
38. ethylbenzene
39. fluoranthene
40. 4-chlorophenyl phenyl ether
41. 4-bromophenyl phenyl ether
42. bis(2-chloroisopropyl)ether
43. bis(2-chloroethoxy)methane
45. methyl chloride (chloromethane)
46. methyl bromide (bromomethane)
47. bromoform (tribromomethane)
49. trichlorofluoromethane (Deleted)
50. dichlorodifluoromethane (Deleted)
52. hexachlorobutadiene
53. hexachlorocyclopentadiene
54. isophorone
56. nitrobenzene
57. 2-nitrophenol
56. 4-nitrophenol
59. 2,4-dinitrophenol
60. 4,6-dinitro-o-cresol
61. N-nitrosodimethylamine
62. N-nitrosodiphenylame
63. N-nitrosodi-n-propylamine
64. pentachlorophenol
65. phenol
71. dimethyl phthalate
72. benzo(a)anthracene (1,2-benzanthracene)
73. benzo(a)pyrene (3,4-benzopyrene)
74. 3,4-benzofluoranthene
75. benzo(k)fluoranthene (11,12-benzofluoranthene)
76. chrysene
77. acenaphthylene
78. anthracene
79. benzo(ghi)perylene (1,12-benzoperylene)
80. fluorene
81. phenanthrene
82. dibenzo (a,h)anthracene (1,2,5,6-dibenzanthracene)
83. ideno (1,2,3-cd)pyrene (2,3,-o-phenylenepyrene)
84. pyrene
85. tetrachloroethylene
86. toluene
87. trichloroethylene
88. vinyl chloride (chloroethylene)
89. aldrin
90. dieldrin
91. chlordane (technical mixture and metabolites)
92. 4,4'-DDT
93. 4,4'-DDE (p,p'DDX)
94. 4,4'-DDD (p,p'TDE)
95. a-endosulfan-Alpha
96. b-endosulfan-Beta
97. endosulfan sulfate
98. endrin
99. endrin aldehyde
100. heptachlor
101. heptachlor epoxide
102. a-BHC-Alpha
103. b-BHC-Beta
104. r-BHC (lindane)-Gamma
105. g-BHC-Delta
106. PCB-1242 (Arochlor 1242)
107. PCB-1254 (Arochlor 1254)
108. PCB-1221 (Arochlor 1221)
109. PCB-1232 (Arochlor 1232)
110. PCB-1248 (Arochlor 1248)
111. PCB-1260 (Arochlor 1260)
112. PCB-1016 (Arochlor 1016)
113. toxaphene
116. asbestos (fibrous)
129. 2,3,7,8-tetra chlorodibenzo-p-dioxin (TCDD)

Appendix D—Toxic Pollutants Detected Below the Analytical Quantification Limit

(a) Subpart O—Primary Beryllium Subcategory

114. antimony
125. selenium
127. thallium

(b) Subpart P—Primary and Secondary Germanium and Gallium Subcategory

21. 2,4,6-trichlorophenol
23. chloroform

64. pentachlorophenol
66. bis(2-ethylhexyl)phthalate
68. di-n-butyl phthalate
87. trichloroethylene
123. mercury

(c) Subpart Q—Secondary Indium Subcategory

68. di-n-butyl phthalate
70. diethyl phthalate
71. dimethyl phthalate
103. beta-BHC
114. antimony
115. arsenic
123. mercury

(d) Subpart R—Secondary Mercury Subcategory

114. antimony
117. beryllium
119. chromium (total)
120. copper
124. nickel
125. selenium
126. silver

(e) Subpart S—Primary Molybdenum and Rhenium Subcategory

44. methylene chloride
104. gamma-BHC
114. antimony
127. thallium

(f) Subpart T—Secondary Molybdenum and Vanadium Subcategory

23. chloroform
126. silver
127. thallium

(g) Subpart U—Primary Nickel and Cobalt Subcategory

4. benzene
86. toluene
114. antimony
115. arsenic
117. beryllium
119. chromium
122. lead
126. silver
127 thallium

(h) Subpart V—Secondary Nickel Subcategory

114. antimony
117. beryllium
118. cadmium
121. cyanide
122. lead
123. mercury
125. selenium
126. silver
127. thallium

(i) Subpart W—Primary Precious Metals and Mercury Subcategory

65. phenol
66. bis(2-ethylhexyl)phthalate
68. di-n-butyl phthalate
78. anthracene
81. phenanthrene
114. antimony

(j) Subpart X—Secondary Precious Metals Subcategory

4. benzene
7. chlorobenzene
10. 1,2-dichloroethane
21. 2,4,6-trichlorophenol
24. 2-chlorophenol
34. 2,4-dimethylphenol
44. methylene chloride (dichloromethane)
47. bromoform (tribromomethane)
48. dichlorobromomethane
51. chlorodibromomethane
54. isophorone
62. N-nitrosodiphenylamine
68. di-n-butyl phthalate
69. di-n-octyl phthalate
70. diethyl phthalate
71. dimethyl phthalate
86. toluene

(k) Subpart Y—Primary Rare Earth Metals Subcategory

7. chlorobenzene
21. 2,4,6-trichlorophenol
47. bromoform (tribromomethane)
65. phenol
86. toluene
114. antimony
117. beryllium

(l) Subpart Z—Secondary Tantalum Subcategory

117. beryllium
118. cadmium
119. chromium
125. selenium
127. thallium

(m) Subpart AA—Secondary Tin Subcategory

9. hexachlorobenzene
11. 1,1,1-trichloroethane
23. chloroform
29. 1,1-dichloroethylene
34. 2,4-dimethylphenol
37. 1,2-diphenylhydrazine
39. fluoranthene
55. naphthalene
62. n-nitrosodimethylamine
68. di-n-butyl phthalate
78. anthracene
80. fluorene
81. phenanthrene
87. trichloroethylene

(n) Subpart AB—Primary and Secondary Titanium Subcategory

13. 1,1-dichloroethane
21. 2,4,6-trichlorophenol
23. chloroform (trichloromethane)
31. 2,4-dichlorophenol
36. 2,6-dinitrotoluene
48. dichlorobromomethane
51. chlorodibromomethane
57. 2-nitrophenol
70. diethyl phthalate
71. dimethyl phthalate
75. benzo(k)fluoranthene (11, 12-benzofluoranthene)
88. vinyl chloride (chloroethylene)
107. PCB-1254 (Arochlor 1254)
117. beryllium

(o) Subpart AD—Secondary Uranium Subcategory

114. antimony
123. mercury
126. silver
127. thallium

(p) Subpart AE—Primary Zirconium and Hafnium Subcategory

55. naphthalene
66. bis(2-ethylhexyl)phthalate
68. di-n-butyl phatalate
69. di-n-octyl phthalate
70. diethyl phthalate
114. antimony
126. silver

Appendix E—Toxic Pollutants Detected in Amounts Too Small To Be Effectively Reduced by Technologies Considered in Preparing This Guideline

(a) Subpart O—Primary Beryllium Subcategory

115. arsenic
123. mercury

(b) Subpart P—Primary and Secondary Germanium and Gallium Subcategory

117. beryllium

(c) Subpart Q—Secondary Indium Subcategory

117. beryllium
120. copper

(d) Subpart R—Secondary Mercury Subcategory

115. arsenic
118. cadmium

(e) Subpart S—Primary Molybdenum and Rhenium Subcategory

117. beryllium
118. cadmium
121. cyanide
123. mercury

(f) Subpart T—Secondary Molybdenum and Vanadium Subcategory

114. antimony
117. beryllium
118. cadmium
121. cyanide
123. mercury
125. selenium

(g) Subpart U—Primary Nickel and Cobalt Subcategory

66. bis(2-ethylhexyl)phthalate
118. cadmium

123. mercury
125. selenium

(h) Subpart W—Primary Precious Metals and Mercury Subcategory

117. beryllium
125. selenium

(i) Subpart X—Secondary Precious Metals Subcategory

57. 2-nitrophenol
123. mercury

(j) Subpart Y—Primary Rare Earth Metols Subcategory

121. cyanide (total)
123. mercury

(k) Subpart Z—Secondary Tantalum Subcategory

115. arsenic
123. mercury

(l) Subpart AA—Secondary Tin Subcategory

117. beryllium
123. mercury

(m) Subpart AB—Primary and Secondary Titanium Subcategory

123. mercury

(n) Subpart AC—Secondary Tungsten and Cobalt Subcategory

117. beryllium
125. selenium

(o) Subpart AD—Secondary Uranium Subcategory

117. beryllium

(p) Subpart AE—Primary Zirconium and Hafnium Subcategory

115. arsenic
117. beryllium
120. copper
123. mercury
125. selenium

Appendix F—Toxic Pollutants Detected in the Effluent From Only a Small Number of Sources

(a) Subpart O—Primary Beryllium Subcategory

118. cadmium
122. lead
124. nickel
126. silver
128. zinc

(b) Subpart P—Primary and Secondary Germanium and Gallium Subcategory

4. benzene
9. hexachlorobenzene
44. methylene chloride
121. cyanide

(c) Subpart Q—Secondary Indium Subcategory

44. methylene chloride
64. pentachlorophenol
65. phenol
121. cyanide

(d) Subpart S—Primary Molybdenum and Rhenium Subcategory

126. silver

(e) Subpart T—Secondary Molybdenum and Vanadium Subcategory

44. methylene chloride
45. methyl chloride
55. naphthalene
70. diethyl phthalate

(f) Subpart W—Primary Precious Metals and Mercury Subcategory

4. benzene
44. methylene chloride
70. diethyl phthalate
86. toluene
121. cyanide

(g) Subpart X—Secondary Precious Metals Subcategory

6. carbon tetrachloride
11. 1,1,1-trichloroethane
23. chloroform
65. phenol
66. bis(2-ethylhexyl)phthalate
117. beryllium

(h) Subpart Y—Primary Rare Earth Metals Subcategory

6. carbon tetrachloride (tetrachloromethane)
23. chloroform (trichloromethane)
44. methylene chloride (dichloromethane)
48. dichlorobromomethane
49. trichlorofluoromethane (Deleted)
51. chlorodibromomethane
66. bis(2-ethylhexyl)phthalate

(i) Subpart AA—Secondary Tin Subcategory

4. benzene
38. ethylbenzene
44. methylene chloride
57. 2-nitrophenol
58. 4-nitrophenol
59. 2,4-dinitrophenol
65. phenol
66. bis(2-ethylhexyl)phthalate
67. butyl benzyl phthalate
84. pyrene
86. toluene
88. vinyl chloride

(j) Subpart AB—Primary and Secondary Titanium Subcategory

4. benzene
11. 1,1,1-trichloroethane
44. mehtylene chloride
64. pentachlorophenol
65. phenol
66. bis(2-ethylhexyl)phthalate
67. butyl benzyl phthalate
68. di-n-butyl phthalate
69. di-n-octyl phthalate
86. toluene
87. trichloroethylene
94. 4,4'-DDD(p,p' TDE)
95. a-endosulfan-alpha
102. a-BHC-alpha
103. b-BHC-beta
115. arsenic
121. cyanide
125. selenium
126. silver

(k) Subpart AC—Secondary Tungsten and Cobalt Subcategory

114. antimony
121. cyanide
123. mercury
127. thallium

(l) Subpart AE—Primary Zirconium and Hafnium Subcategory

23. chloroform (trichloroethane)
44. methylene chloride (dichloromethane)
48. dichlorobromomethane
51. chlorodibromomethane
67. butyl benzyl phthalate

Appendix G—Toxic Pollutants Effectively Controlled by Technologies Which Other Effluent Limitations and Guidelines Are Based Upon

(a) Subpart N—Primary Antimony Subcategory

118. cadmium
120. copper
122. lead
128. zinc

(b) Subpart P—Primary and Secondary Germanium and Gallium

114. antimony
118. cadmium
119. chromium
120. copper
124. nickel
125. selenium
126. silver
127. thallium

(c) Subpart Q—Secondary Indium Subcategory

119. chromium
124. nickel
125. selenium
126. silver
127. thallium

(d) Subpart R—Secondary Mercury Subcategory

127. thallium
128. zinc

(e) Subpart S—Primary Molybdenum and Rhenium Subcategory

119. chromium (total)
120. copper
128. zinc

(f) Subpart V—Secondary Molybdenum and Vanadium Subcategory

120. copper
128. zinc

(g) Subpart U—Primary Nickel and Cobalt Subcategory

128. zinc

(h) Subpart V—Secondary Nickel Subcategory

115. arsenic
128. zinc

(i) Subpart W—Primary Precious Metals and Mercury Subcategory

115. arsenic
118. cadmium
119. chromium
120. copper
124. nickel
127. thallium

(j) Subpart X—Secondary Precious Metals Subcategory

114. antimony
115. arsenic
118. cadmium
119. chromium
122. lead
124. nickel
125. selenium
126. silver
127. thallium

(k) Subpart Y—Primary Rare Earth Metals Subcategory

4. benzene
115. arsenic
118. cadmium
120. copper
125. selenium
126. silver
127. thallium
128. zinc

(l) Subpart Z—Secondary Tantalum Subcategory

114. antimony
126. silver

(m) Subpart AA—Secondary Tin Subcategory

114. antimony
118. cadmium
119. chromium
120. copper
124. nickel
125. selenium
126. silver
127. thallium
128. zinc

(n) Subpart AB—Primary and Secondary Titanium Subcategory

114. antimony
118. cadmium
120. copper
127. thallium
128. zinc

(o) Subpart AC—Secondary Tungsten and Cobalt Subcategory

115. arsenic
118. cadmium
119. chromium
122. lead
126. silver
128. zinc

(p) Subpart AD—Secondary Uranium Subcategory

115. arsenic
118. cadmium
122. lead
125. selenium
128. zinc

(q) Subpart AE—Primary Zirconium and Hafnium Subcategory

118. cadmium
127. thallium
128. zinc

For the reasons discussed above, EPA is amending 40 CFR Part 421 as follows:

PART 421—NONFERROUS METALS MANUFACTURING POINT SOURCE CATEGORY

1. The authority citation for Part 421 is revised to read as follows:

Authority: Secs. 301, 304 (b), (c), (e), and (g), 306 (b) and (c), 307 (b) and (c), 308, and 501 of the Federal Water Pollution Control Act as amended (the Act); 33 U.S.C. 1251, 1311, 1314 (b), (c), (e), and (g), 1316 (b) and (c), 1317 (b) and (c), and 1361; 86 Stat. 816, Pub. L. 92–500; 91 Stat. 1567, Pub. L. 95–217.

§ 421.4 Compliance date for PSES.

The PSES compliance date in subparts A through I is March 8, 1987. The PSES compliance date for plants in subpart J through subpart AE is September 20, 1988.

3. Section 421.12 is amended by revising the introductory paragraph to read as follows:

§ 421.12 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart, shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available:

* * * * *

4. Section 421.13 is amended by adding an introductory paragraph to read as follows:

§ 421.13 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

* * * * *

5. Section 421.16 is revised to read as follows:

§ 421.16 Pretreatment standards for new sources.

Any new sources subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403.

Subpart I—Metallurigical Acid Plants Subcategory

§ 421.90 [Amended]

6. Section 421.90 is amended by removing the word "and" following "primary zinc facilities" and by inserting the phrase, "and primary molybdenum facilities", before the word "including."

7. Section 421.92 is revised to make technical changes required in converting kg/kkg units to mg/kg units. The text of § 421.91 and §§ 421.93–421.96, is not amended, but set out for the convenience of the reader.

§ 421.91 Specialized definitions.

(a) Except as provided below, the general definitions, abbreviations, and methods of analysis set forth in 40 CFR Part 401 apply to this subpart.

(b) The term "product" means 100 percent equivalent sulfuric acid, H_2SO_4 capacity.

§ 421.92 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30–.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT):

SUBPART I—METALLURGICAL ACID PLANT—BPT EFFLUENT LIMITATIONS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of 100 percent sulfuric acid capacity	
Cadmium	0.180	0.090
Copper	5.000	2.000
Lead	1.800	0.790
Zinc	3.600	0.900
Total suspended solids	304.000	152.000
pH	(1)	(1)

[1] Within the range of 6.0 to 9.0 at all times

§ 421.93 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30–.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

SUBPART I—METALLURGICAL ACID PLANT—BAT EFFLUENT LIMITATIONS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds) of 100 pct sulfuric acid capacity	
Arsenic	3.550	1.584
Cadmium	0.511	0.204
Copper	3.269	1.558
Lead	0.715	0.332
Zinc	2.605	1.073
Fluoride[1]	89.390	50.820
Molybdenum[1]	12.850	5.695

[1] For Molybdenum Acid Plants Only.

§ 421.94 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

SUBPART I—METALLURGICAL ACID PLANT—NSPS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds) of 100 pct sulfuric acid capacity	
Arsenic	3.550	1.584
Cadmium	0.511	0.204
Copper	3.269	1.558
Lead	0.715	0.332
Zinc	2.605	1.073
Fluoride[1]	89.390	50.820
Molybdenum[1]	12.850	5.695
Total suspended solids	38.310	30.650
pH	(2)	(2)

[1] For Molybdenum acid plants only.
[2] Within the range of 7.5 to 10.0 at all times.

§ 421.95 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources. The mass of wastewater pollutants in metallurgical acid plant blowdown introduced into a POTW shall not exceed the following values:

SUBPART I—METALLURGICAL ACID PLANT—PSES

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pound per/million pounds) of 100 pct sulfuric acid capacity	
Cadmium	0.511	0.204
Zinc	2.605	1.073

§ 421.96 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in metallurgical acid plant blowdown introduced into a POTW shall not exceed the following values:

SUBPART I—METALLURGICAL ACID PLANT—PSNS

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of 100 pct sulfuric acid capacity	
Arsenic	3.550	1.584
Cadmium	0.511	0.204
Copper	3.269	1.558
Lead	0.715	0.332
Zinc	2.605	1.073
Fluoride[1]	89.390	50.820
Molybdenum[1]	12.850	5.695

[1] For Molybdenum Acid Plants Only.

8. Subparts N through AE are added to read as follows:

Subpart N—Primary Antimony Subcategory

Subpart O—Primary Beryllium Subcategory

Subpart P—Primary and Secondary Germanium and Gallium Subcategory

Subpart Q—Secondary Indium Subcategory

Subpart R—Secondary Mercury Subcategory

Sec.
421.200 Applicability: description of the secondary mercury subcategory.
421.201 Specialized definitions.
421.202 [Reserved].
421.203 [Reserved].
421.204 Standards of performance for new sources.
421.205 [Reserved].
421.206 Pretreatment standards for new sources.
421.207 [Reserved].

Subpart S—Primary Molybdenum and Rhenium Subcategory

Sec.
421.210 Applicability: description of the primary molybdenum and rhenium subcategory.
421.211 Specialized definitions.
421.212 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
421.213 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
421.214 Standards of performance for new sources.
421.215 [Reserved].
421.216 Pretreatment standards for new sources.
421.217 [Reserved].

Subpart T—Secondary Molybdenum and Vanadium Subcategory

Sec.
421.220 Applicability: description of the secondary molybdenum and vanadium subcategory.
421.221 Specialized definitions.
421.222 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
421.223 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically available.
421.224 Standards of performance for new sources.
421.225 [Reserved].
421.226 Pretreatment standards for new sources.
421.227 [Reserved].

Subpart U—Primary Nickel and Cobalt Subcategory

Sec.
421.230 Applicability: description of the primary nickel and cobalt subcategory.
421.231 Specialized definitions.
421.232 Effuent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Sec.
421.233 Effuent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically available.
421.234 Standards of performance for new sources.
421.235 [Reserved].
421.236 Pretreatment standards for new sources.
421.237 [Reserved].

Subpart V—Secondary Nickel Subcategory

Sec.
421.240 Applicability: description of the secondary nickel subcategory.
421.241 Specialized definitions.
421.242 [Reserved].
421.243 [Reserved].
421.244 Standards of performance for new sources.
421.245 Pretreatment standards for existing sources.
421.246 Pretreatment standards for new sources.
421.247 [Reserved].

Subpart W—Primary Precious Metals and Mercury Subcategory

421.250 Applicability: description of the primary precious metals and mercury subcategory.
421.251 Specialized definitions.
421.252 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
421.253 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
421.254 Standards of performance for new sources.
421.255 [Reserved].
421.256 Pretreatment standards for new sources.
421.257 [Reserved].

Subpart X—Secondary Precious Metals Subcategory

421.260 Applicability: description of the secondary precious metals subcategory.
421.261 Specialized definitions.
421.262 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
421.263 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
421.264 Standards of performance for new sources.
421.265 Pretreatment standards for existing sources.
421.266 Pretreatment standards for new sources.
421.267 [Reserved].

Subpart Y—Primary Rare Earth Metals Subcategory

421.270 Applicability: description of the primary rare earth metals subcategory.
421.271 Specialized definitions.
421.272 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
421.273 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
421.274 Standards of performance for new sources.
421.275 Pretreatment standards for existing sources.
421.276 Pretreatment standards for new sources.
421.277 [Reserved].

Subpart Z—Secondary Tantalum Subcategory

421.280 Applicability: description of the secondary tantalum subcategory.
421.281 Specialized definitions.
421.282 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
421.283 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
421.284 Standards of performance for new sources.
421.285 [Reserved].
421.286 Pretreatment standards for new sources.
421.287 [Reserved].

Subpart AA—Secondary Tin Subcategory

421.290 Applicability: description of the secondary tin subcategory
421.291 Specialized definitions.
421.292 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.
421.293 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.
421.294 Standards of performance for new sources.
421.295 Pretreatment standards for existing sources.
421.296 Pretreatment standards for new sources.
421.297 [Reserved].

Subpart AB—Primary and Secondary Titanium Subcategory

Sec.
421.300 Applicability: description of the primary and secondary titanium subcategory.
421.301 Specialized definitions.

Subpart AC—Secondary Tungsten and Cobalt Subcategory

Subpart AD—Secondary Uranium Subcategory

Subpart AE—Primary Zirconium and Hafnium Subcategory

Subpart N—Primary Antimony Subcategory

§ 421.140 Applicability: description of the primary antimony subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of antimony at primary antimony facilities.

§ 421.141 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

§ 421.142 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available:

(a) Sodium Antimonate Autoclave Wastewater.

BPT LIMITATIONS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of antimony contained in sodium antimonate product	
Antimony	44.840	20.000
Arsenic	32.650	14.530
Mercury	3.906	1.562
Total suspended solids	640.600	304.700
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(b) Fouled anolyte.

BPT LIMITATIONS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of antimony metal produced by electrowinning	
Antimony	44.840	20.000
Arsenic	32.650	14.530
Mercury	3.906	1.562
Total suspended solids	640.600	304.700
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(c) Cathode Antimony Wash Water.

BPT LIMITATIONS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of antimony metal produced by electrowinning	
Antimony	89.680	40.000
Arsenic	65.310	29.060
Mercury	7.812	3.125
Total suspended solids	1,281.000	609.300
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.143 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Sodium Antimonate Autoclave Wastewater.

BAT LIMITATIONS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of antimony contained in sodium antimonate product	
Antimony	30.150	13.440
Arsenic	21.720	9.687
Mercury	2.344	0.937

(b) Fouled Anolyte.

BAT LIMITATIONS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg pounds per million pounds of antimony metal produced by electrowinning	
Antimony	30.150	13.440
Arsenic	21.720	9.687
Mercury	2.344	0.937

(c) Cathode Antimony Wash Water

BAT LIMITATIONS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of antimony metal produced by electrowinning	
Antimony	60.310	26.870
Arsenic	43.430	19.370
Mercury	4.687	1.875

§ 421.144 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Sodium Antimonate Autoclave Wastewater.

NSPS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of antimony contained in sodium antimonate product	
Antimony	30.150	13.440
Arsenic	21.720	9.687
Mercury	2.344	0.937
Total suspended solids	234.400	187.500
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(b) Fouled Anolyte.

NSPS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of antimony metal produced by electrowinning	
Antimony	30.150	13.440
Arsenic	21.720	9.687
Mercury	2.344	0.937
Total suspended solids	234.400	187.500
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Cathode Antimony Wash Water.

NSPS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of antimony metal produced by electrowinning	
Antimony	60.310	26.870
Arsenic	43.430	19.370
Mercury	4.687	1.875
Total suspended solids	468.700	375.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

§ 421.145 [Reserved].

§ 421.146 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in primary antimony process wastewater introduced into a POTW shall not exceed the following values:

(a) Sodium Antimonate Autoclave Wastewater.

PSNS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of antimony contained in sodium antimonate product	
Antimony	30.150	13.440
Arsenic	21.720	9.687
Mercury	2.344	0.937

(b) Fouled Anolyte.

PSNS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of antimony metal produced by electrowinning	
Antimony	30.150	13.440
Arsenic	21.720	9.687
Mercury	2.344	0.937

(c) Cathode Antimony Washwater.

PSNS FOR THE PRIMARY ANTIMONY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of antimony metal produced by electrowinning	
Antimony	60.310	26.870
Arsenic	43.430	19.370
Mercury	4.687	1.875

§ 421.147 [Reserved].

Subpart O—Primary Beryllium Subcategory

§ 421.150 Applicability: description of the primary beryllium subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of beryllium by primary beryllium facilities processing beryllium ore concentrates or beryllium hydroxide raw materials.

§ 421.151 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

§ 421.152 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

(a) Solvent Extraction Raffinate from Bertrandite Ore.

BPT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium carbonate produced from bertrandite ore as beryllium	
Beryllium	2,763.000	1,235.000
Chromium (total)	988.200	404.300
Copper	4,267.000	2,246.000
Cyanide (total)	651.300	269.500
Ammonia (as N)	299,400.000	131,600.000
Fluoride	78,610.000	44,700.000
Total suspended solids	92,090.000	43,800.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times

(b) Solvent Extraction Raffinate from Beryl Ore.

BPT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium carbonate produced from beryl ore as beryllium	
Beryllium	270.6	121.0
Chromium (total)	96.8	39.6
Copper	418.0	220.0
Cyanide (total)	63.8	26.4
Ammonia (as N)	29,330.0	12,890.0
Fluoride	7,700.0	4,378.0
Total suspended solids	9,020.0	4,290.0
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Beryllium Carbonate Filtrate.

BPT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium carbonate produced as beryllium	
Beryllium	263.800	118.000
Chromium (total)	94.380	38.610
Copper	407.600	214.500
Cyanide (total)	62.210	25.740
Ammonia (as N)	28,590.000	12,570.000
Fluoride	7,508.000	4,269.000
Total suspended	8,795.000	4,183.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(d) Beryllium Hydroxide Filtrate.

BPT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium hydroxide produced as beryllium	
Beryllium	64.770	28.960
Chromium (total)	23.170	9.479
Copper	100.100	52.660
Cyanide (total)	15.270	6.319
Ammonia (as N)	7,020.000	3,086.000
Fluoride	1,843.000	1,048.000
Total suspended solids	2,159.000	1,027.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(e) Beryllium Oxide Calcining Furnace Wet Air Pollution Control.

BPT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium oxide produced	
Beryllium	324.000	145.000
Chromium (total)	116.000	47.470
Copper	501.000	263.700
Cyanide (total)	76.470	31.640
Ammonia (as N)	35,150.000	15,450.000
Fluoride	9,230.000	5,248.000
Total suspended solids	10,810.000	5,142.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(f) Beryllium hydroxide supernatant.

BPT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium hydroxide produced from scrap and residues as beryllium	
Beryllium	282.9	126.5
Chromium (total)	101.2	41.4
Copper	437.0	230.0
Cyanide (total)	66.7	27.6
Ammonia (as N)	30,660.0	13,480.0
Fluoride	8,050.0	4,577.0
Total suspended solids	9,430.0	4,485.0
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(g) Process water.

BPT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium pebbles produced	
Beryllium	215.00	96.14
Chromium (total)	76.91	31.46
Copper	332.10	174.80
Cyanide (total)	50.69	20.98
Ammonia (as N)	23,300.00	10,240.00
Fluoride	6,118.00	3,479.00
Total suspended solids	7,167.00	3,409.00
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(h) Fluoride furnace scrubber.

BPT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium pebbles produced	
Beryllium	0.000	0.000
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Cyanide (total)	0.000	0.000
Ammonia (as N)	0.000	0.000
Fluoride	0.000	0.000
Total suspended solids	0.000	0.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(i) Chip treatment wastewater.

BPT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium scrap chips treated	
Beryllium	9.533	4.263
Chromium (total)	3.410	1.395
Copper	14.730	7.750
Cyanide (total)	2.248	0.930
Ammonia (as N)	1,033.000	454.200
Fluoride	271.300	154.200
Total suspended solids	317.800	151.100
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(j) Beryllium Pebble Plant Area Vent Wet Air Pollution Control.

BPT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium pebbles produced	
Beryllium	0.000	0.000
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Cyanide (total)	0.000	0.000
Ammonia (as N)	0.000	0.000
Fluoride	0.000	0.000
Total suspended solids	0.000	0.000
pH	1	1

[1] Within the range of 7.5 to 10.0 at all times.

§ 421.153 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Solvent extraction raffinate from bertrandite ore.

BAT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium carbonate produced from bertrandite ore as beryllium	
Beryllium	1,842.000	831.000
Chromium (total)	831.000	336.900
Copper	2,875.000	1,370.000
Cyanide (total)	449.200	179.700
Ammonia (as N)	299,400.000	131,600.000
Fluoride	78,610.000	44,700.000

(b) Solvent extraction raffinate from beryl ore.

BAT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium carbonate produced from beryl ore as beryllium	
Beryllium	180.4	81.4
Chromium (total)	81.4	33.0
Copper	281.6	134.2
Cyanide (total)	44.0	17.6
Ammonia (as N)	29,330.0	12,890.0
Fluoride	7,700.0	4,378.0

(c) Beryllium carbonate filtrate.

BAT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium carbonate produced as beryllium	
Beryllium	175.900	79.370
Chromium (total)	79.370	32.180
Copper	274.600	130.800
Cyanide (total)	42.900	17.160
Ammonia (as N)	28,590.000	12,570.000
Fluoride	7,508.000	4,269.000

(d) Beryllium hydroxide filtrate.

BAT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium hydroxide produced as beryllium	
Beryllium	43.180	19.480
Chromium (total)	19.480	7.899
Copper	67.400	32.120
Cyanide (total)	10.530	4.213
Ammonia (as N)	7,020.000	3,086.000
Fluoride	1,843.000	1,048.000

(e) Beryllium oxide calcining furnace wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium oxide produced	
Beryllium	216.20	97.57
Chromium (total)	97.57	39.56
Copper	337.50	160.90
Cyanide (total)	52.74	21.10
Ammonia (as N)	35,150.00	15,450.00
Fluoride	9,230.00	5,248.00

(f) Beryllium hydroxide supernatant.

BAT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium hydroxide produced from scrap and residues as beryllium	
Beryllium	188.6	85.1
Chromium (total)	85.1	34.5
Copper	294.4	140.3
Cyanide (total)	46.0	18.4
Ammonia (as N)	30,660.0	13,480.0
Fluoride	8,050.0	4,577.0

(g) Process water.

BAT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium pebbles produced	
Beryllium	143.30	64.68
Chromium (total)	64.68	26.22
Copper	223.70	106.60
Cyanide (total)	34.96	13.98
Ammonia (as N)	23,300.00	10,240.00
Fluoride	6,118.00	3,479.00

(h) Fluoride furnace scrubber.

BAT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium pebbles produced	
Beryllium	0.000	0.000
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Cyanide (total)	0.000	0.000
Ammonia (as N)	0.000	0.000
Fluoride	0.000	0.000

(i) Chip treatment wastewater.

BAT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium scrap chips treated	
Beryllium	6.355	2.868
Chromium (total)	2.868	1.163
Copper	9.920	4.728
Cyanide (total)	1.550	0.620
Ammonia (as N)	1,033.000	454.200
Fluoride	271.300	154.200

(j) Beryllium pebble plant area vent wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium pebbles produced	
Beryllium	0.000	0.000
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Cyanide (total)	0.000	0.000
Ammonia (as N)	0.000	0.000
Fluoride	0.000	0.000

§ 421.154 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Solvent extraction raffinate from bertrandite ore.

NSPS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds million pounds) of beryllium carbonate produced from bertrandite ore as beryllium	
Beryllium	1,842.000	831.000
Chromium (total)	831.000	336.900
Copper	2,875.000	1,370.000
Cyanide (total)	449.200	179.700
Ammonia (as N)	299,400.000	131,600.000
Fluoride	78,610.000	44,700.000
Total Suspended solids	33,690.000	26,950.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(b) Solvent extraction raffinate from beryl ore.

NSPS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium carbonate produced from beryl ore as beryllium	
Beryllium	180.4	81.4
Chromium (total)	81.4	33.0
Copper	281.6	134.2
Cyanide (total)	44.0	17.6
Ammonia (as N)	29,330.0	12,890.0
Fluoride	7,700.0	4,378.0
Total Suspended solids	3,300.0	2,640.0
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Beryllium carbonate filtrate.

NSPS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium carbonate produced as beryllium	
Beryllium	175.900	79.370
Chromium (total)	79.370	32.180
Copper	274.600	130.800
Cyanide (total)	42.900	17.160
Ammonia (as N)	28,590.000	12,579.000
Fluoride	7,508.000	4,269.000
Total Suspended solids	3,218.000	2,574.000
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(d) Beryllium hydroxide filtrate.

NSPS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium hydroxide produced as beryllium	
Beryllium	43.180	19.480
Chromium (total)	19.480	7.899
Copper	67.400	32.120
Cyanide (total)	10.530	4.213
Ammonia (as N)	7,020.000	3,086.000
Fluoride	1,843.000	1,048.000
Total Suspended solids	789.900	631.900
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(e) Beryllium oxide calcining furnace wet air pollution control.

NSPS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium oxide produced	
Beryllium	216.20	97.57
Chromium (total)	95.57	39.56
Copper	337.50	160.90
Cyanide (total)	52.74	21.10
Ammonia (as N)	35,150.00	15,450.00
Fluoride	9,230.00	5,248.00
Total suspended solids	3,956.00	3,164.00
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(f) Beryllium hydroxide supernatant.

NSPS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium hydroxide produced from scrap and residues as beryllium	
Beryllium	188.6	85.1
Chromium (total)	85.1	34.5
Copper	294.4	140.3
Cyanide (total)	46.0	18.4
Ammonia (as N)	30,660.0	13,480.0
Fluoride	8,050.0	4,577.0
Total Suspended solids	3,450.0	2,760.0
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(g) Process water.

NSPS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounda per million pounds) of beryllium pebbles produced	
Beryllium	143.30	64.88
Chromium (total)	64.68	26.22
Copper	223.70	106.60
Cyanide (total)	34.96	13.98
Ammonia (as N)	23,300.00	10,240.00
Fluoride	6,118.00	3,479.00
Total suspended solids	2,622.00	2,098.00
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(h) Fluoride furnance scrubber.

NSPS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium pebbles produced	
Beryllium	0.000	0.000
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Cyanide (total)	0.000	0.000
Ammonia (as N)	0.000	0.000
Fluoride	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(i) Chip treatment wastewater.

NSPS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium scrap chips treated	
Beryllium	6.355	2.868
Chromium (total)	2.868	1.163
Copper	9.920	4.728
Cyanide (total)	1.550	0.620
Ammonia (as N)	1,033.000	454.200
Fluoride	271.300	154.200
Total suspended solids	116.300	93.000
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(j) Beryllium pebble plant area vent wet air pollution control.

NSPS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium pebbles produced	
Beryllium	0.000	0.000
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Cyanide (total)	0.000	0.000
Ammonia (as N)	0.000	0.000
Fluoride	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

§ 421.155 [Reserved].

§ 421.156 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in primary beryllium process wastewater introduced into a POTW shall not exceed the following values:

(a) Solvent extraction raffinate from bertrandite ore.

PSNS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium carbonate produced from bertrandite ore as beryllium	
Beryllium	1,842.000	831.000
Chromium (total)	831.000	336.900
Copper	2,875.000	1,370.000
Cyanide (total)	449.200	179.700
Ammonia (as N)	299,400.000	131,600.000
Fluoride	78,610.000	44,700.000

(b) Solvent extraction raffinate from beryl ore.

PSNS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium carbonate produced from beryl ore as beryllium	
Beryllium	180.4	81.4
Chromium (total)	81.4	33.0
Copper	281.6	134.2
Cyanide (total)	44.0	17.6
Ammonia (as N)	29,330.0	12,890.0
Fluoride	7,700.0	4,378.0

(c) Beryllium carbonate filtrate.

PSNS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium carbonate produced as beryllium	
Beryllium	175.900	79.370
Chromium (total)	79.370	32.180
Copper	274.600	130.800
Cyanide (total)	42.900	17.160
Ammonia (as N)	28,590.000	12,570.000
Fluoride	7,508.000	4,269,000

(d) Beryllium hydroxide filtrate.

PSNS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium hydroxide produced as beryllium	
Beryllium	43.180	19.480
Chromium (total)	19.480	7.899
Copper	67.400	32.120
Cyanide (total)	10.530	4.213
Ammonia (as N)	7,020.000	3,086.000
Fluoride	1,843.000	1,048.000

(e) Beryllium oxide calcining furnace wet air pollution control.

PSNS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium oxide produced	
Beryllium	216.20	97.57
Chromium (total)	97.57	39.58
Copper	337.50	160.90
Cyanide (total)	52.74	21.10
Ammonia (as N)	35,150.00	15,450.00
Fluoride	9,230.00	5,248.00

(f) Beryllium hydroxide supernatant

PSNS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of beryllium hydroxide produced from scrap and residues as beryllium	
Beryllium	188.6	85.1
Chromium (total)	85.1	34.5
Copper	294.4	140.3
Cyanide (total)	46.0	18.4
Ammonia (as N)	30,660.0	13,480.0
Fluoride	8,050.0	4,577.0

(g) Process water.

PSNS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg pounds per million pounds of beryllium pebbles produced	
Beryllium	143.30	64.68
Chromium (total)	64.68	26.22
Copper	223.70	106.60
Cyanide (total)	34.98	13.98
Ammonia (as N)	23,300.00	10,240.00
Fluoride	6,118.00	3,479.00

(h) Fluoride furnace scrubber.

PSNS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg pounds per million pounds of beryllium pebbles produced	
Beryllium	0.000	0.000
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Cyanide (total)	0.000	0.000
Ammonia (as N)	0.000	0.000
Fluoride	0.000	0.000

(i) Chip treatment wastewater.

PSNS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg pounds per million pounds of beryllium scrap chips treated	
Beryllium	6.355	2.868
Chromium (total)	2.868	1.163
Copper	9.920	4.728
Cyanide (total)	1.550	0.820
Ammonia (as N)	1,033.000	454.200
Fluoride	271.300	154.200

(j) Beryllium pebble plant area vent wet air pollution control

PSNS FOR THE PRIMARY BERYLLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg pounds per million pounds of beryllium pebbles produced	
Beryllium	0.000	0.000
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Cyanide (total)	0.000	0.000
Ammonia (as N)	0.000	0.000
Fluoride	0.000	0.000

§ 421.157 [Reserved]

Subpart P—Primary and Secondary Germanium and Gallium Subcategory

§ 421.180 Applicability: description of the primary and secondary germanium and gallium subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of germanium or gallium from primary and secondary germanium and gallium facilities.

§ 421.181 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

§ 421.182 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

(a) Still liquor.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium chlorinated	
Arsenic	131.700	58.590
Lead	26.460	12.600
Zinc	91.980	38.430
Fluoride	2,205.000	1,254.000
Total suspended solids	2,583.000	1,229.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(b) Chlorinator wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium chlorinated	
Arsenic	27.530	12.250
Lead	5.531	2.634
Zinc	19.230	8.034
Fluoride	461.000	262.100
Total suspended solids	540.000	256.800
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Germanium hydrolysis filtrate.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium hydrolyzed	
Arsenic	39.440	17.550
Lead	7.925	3.774
Zinc	27.550	11.510
Fluoride	660.500	375.500
Total suspended solids	773.700	368.000
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(d) Acid wash and rinse water.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium washed	
Arsenic	325.500	144.800
Lead	65.400	31.140
Zinc	227.400	94.990
Fluoride	5,450.000	3,099.000
Total suspended solids	6,385.000	3,037.000
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(e) Gallium hydrolysis filtrate.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of gallium hydrolyzed	
Arsenic	70.450	31.350
Lead	14.160	6.742
Zinc	49.220	20.560
Fluoride	1,180.000	670.800
Total suspended solids	1,382.000	657.300
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(f) Solvent extraction raffinate.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of gallium produced by solvent extraction	
Arsenic	39.330	17.500
Lead	7.904	3.764
Zinc	27.480	11.480
Fluoride	658.700	374.500
Total suspended solids	771.600	367.000
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

§ 421.183 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Still liquor.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium chlorinated	
Arsenic	131.700	58.590
Lead	26.460	12.600
Zinc	91.980	38.430
Fluoride	2,205.000	1,254.000

(b) Chlorinator wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium chlorinated	
Arsenic	27.530	12.250
Lead	5.531	2.634
Zinc	19.230	8.034
Fluoride	461.000	262.100

(c) Germanium hydrolysis filtrate.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium hydrolyzed	
Arsenic	39.440	17.550
Lead	7.925	3.774
Zinc	27.550	11.510
Fluoride	660.500	375.500

(d) Acid wash and rinse water.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium washed	
Arsenic	325.50	144.80
Lead	65.40	31.14
Zinc	227.40	94.99
Fluoride	5,450.00	3,099.00

(e) Gallium hydrolysis filtrate.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium hydrolyzed	
Arsenic	70.450	31.350
Lead	14.160	6.742
Zinc	49.220	20.560
Fluoride	1,180.000	670.800

(f) Solvent extraction raffinate.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of gallium produced by solvent extraction	
Arsenic	39.330	17.500
Lead	7.904	3.764
Zinc	27.480	11.480
Fluoride	658.700	374.500

§ 421.184 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Still liquor.

NSPS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium chlorinated	
Arsenic	131.70	58.59
Lead	26.46	12.60
Zinc	91.98	38.43
Fluoride	2,205.00	1,254.00
Total suspended solids	2,583.00	1,229.00
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(b) Chlorinator wet air pollution control.

NSPS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium chlorinated	
Arsenic	27.530	12.250
Lead	5.531	2.634
Zinc	19.230	8.034
Fluoride	461.000	262.100
Total suspended solids	540.000	256.800
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Germanium hydrolysis filtrate.

NSPS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for 1 one day	Maximum for monthly average
	mg/kg pounds per million pounds) of germanium hydrolyzed	
Arsenic	39.440	17.550
Lead	7.925	3.774
Zinc	27.550	11.510
Fluoride	660.500	375.500
Total suspended solids	773.700	368.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(d) Acid wash and rinse water.

NSPS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium washed	
Arsenic	325.50	144.80
Lead	65.40	31.14
Zinc	227.40	94.99
Fluoride	5,450.00	3,099.00
Total suspended solids	6,385.00	3,037.00
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(e) Gallium hydrolysis filtrate.

NSPS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of gallium hydrolyzed	
Arsenic	70.450	31.350
Lead	14.160	6.742
Zinc	49.220	20.560
Fluoride	1,180.000	670.800
Total suspended solids	1,382.000	657.300
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(f) Solvent extraction raffinate.

NSPS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of gallium produced by solvent extraction	
Arsenic	39.330	17.500
Lead	7.904	3.764
Zinc	27.480	11.480
Fluoride	658.700	374.500
Total suspended solids	771.600	367.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

§ 421.185 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources. The mass of wastewater pollutants in primary and secondary germanium and gallium process wastewater introduced into a POTW must not exceed the following values:

(a) Still liquor.

PSES FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium chlorinated	
Arsenic	131.70	58.59
Lead	26.46	12.60
Zinc	91.98	38.43
Fluoride	2,205.00	1,254.00

(b) Chlorinator wet air pollution control.

PSES FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium chlorinated	
Arsenic	27.530	12.250
Lead	5.531	2.634
Zinc	19.230	8.034
Fluoride	461.000	262.100

(c) Germanium hydrolysis filtrate.

PSES FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium hydrolyzed	
Arsenic	39.440	17.550
Lead	7.925	3.774
Zinc	27.550	11.510
Fluoride	660.500	375.500

(d) Acid wash and rinse water.

PSES FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of germanium washed	
Arsenic	325.50	144.80
Lead	65.40	31.14
Zinc	227.40	94.99
Fluoride	5,450.00	3,099.00

(e) Gallium hydrolysis filtrate.

PSES FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of gallium hydrolyzed	
Arsenic	70.450	31.350
Lead	14.160	6.742
Zinc	49.220	20.560
Fluoride	1,180.000	670.800

(f) Solvent extraction raffinate.

PSES FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of gallium produced by solvent extraction	
Arsenic	39.330	17.500
Lead	7.904	3.764
Zinc	27.480	11.480
Fluoride	658.700	374.500

§ 421.186 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in primary and secondary germanium and gallium process wastewater introduced into a POTW shall not exceed the following values:

(a) Still Liquor.

PSNS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds of germanium chlorinated	
Arsenic	131.70	58.59
Lead	26.46	12.60
Zinc	91.98	38.43
Fluoride	2,205.00	1,254.00

(b) Chlorinator Wet Air Pollution Control.

PSNS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds of germanium chlorinated	
Arsenic	27.530	12.250
Lead	5.531	2.634
Zinc	19.230	8.034
Fluoride	461.000	262.100

(c) Germanium Hydrolysis Filtrate.

PSNS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds of germanium hydrolyzed	
Arsenic	39.440	17.550
Lead	7.925	3.774
Zinc	27.550	11.510
Fluoride	660.500	375.500

(d) Acid Wash and Rinse Water.

PSNS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds of germanium washed	
Arsenic	325.50	144.80
Lead	65.40	31.14
Zinc	227.40	94.99
Fluoride	5,450.00	3,099.00

(e) Gallium Hydrolysis Filtrate.

PSNS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of gallium hydrolyzed	
Arsenic	70.450	31.350
Lead	14.160	6.742
Zinc	49.220	20.560
Fluoride	1,180.000	670.800

(f) Solvent Extraction Raffinate.

PSNS FOR THE PRIMARY AND SECONDARY GERMANIUM AND GALLIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of gallium produced by solvent extraction	
Arsenic	39.330	17.500
Lead	7.904	3.764
Zinc	27.480	11.480
Fluoride	658.700	374.500

§ 421.187 [Reserved].

Subpart Q—Secondary Indium Subcategory

Sec.

§ 421.190 Applicability: description of the secondary indium subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of indium at secondary indium facilities processing spent electrolyte solutions and scrap indium metal raw materials.

§ 421.191 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

§ 421.192 [Reserved].

§ 421.193 [Reserved].

§ 421.194 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Displacement Supernatant.

NSPS FOR THE SECONDARY INDIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of indium metal produced	
Cadmium	2.105	0.929
Lead	2.800	1.238
Zinc	9.037	3.776
Indium	2.724	1.114
Total suspended solids	253.800	120.700
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(b) Spent Electrolyte.

NSPS FOR THE SECONDARY INDIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cathode indium produced	
Cadmium	12.170	5.370
Lead	15.040	7.160
Zinc	52.270	21.840
Indium	15.750	6.444
Total suspended solids	1,468.000	698.100
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.195 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40

CFR Part 403 and achieve the following pretreatment standards for existing sources. The mass of wastewater pollutants in secondary indium process wastewater introduced into a POTW must not exceed the following values:

(a) Displacement Supernatant.

PSES FOR THE SECONDARY INDIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of indium metal produced	
Cadmium	2.105	0.929
Lead	2.600	1.238
Zinc	9.037	3.776
Indium	2.724	1.114

(b) Spent Electrolyte.

PSES FOR THE SECONDARY INDIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cathode indium produced	
Cadmium	12.170	5.370
Lead	15.040	7.160
Zinc	52.270	21.840
Indium	15.750	6.444

§ 421.196 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in secondary indium process wastewater introduced into a POTW should not exceed the following values:

(a) Displacement Supernatant.

PSNS FOR THE SECONDARY INDIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of indium metal produced	
Cadimum	2.105	0.929
Lead	2.600	1.238
Zinc	9.037	3.776
Indium	2.724	1.114

(b) Spent Electrolyte.

PSNS FOR THE SECONDARY INDIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cathode indium produced	
Cadmium	12.170	5.370
Lead	15.040	7.160
Zinc	52.270	21.840
Indium	15.750	6.444

§ 421.197 [Reserved]

Subpart R—Secondary Mercury Subcategory

§ 421.200 Applicability: description of the secondary mercury subcategory.

The provision of this subpart are applicable to discharges resulting from the production of mercury from secondary mercury facilities processing recycled mercuric oxide batteries and other mercury containing scrap raw materials.

§ 421.201 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

§ 421.202 [Reserved].

§ 421.203 [Reserved].

§ 421.204 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Spent battery electrolyte.

NSPS FOR THE SECONDARY MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury produced from batteries	
Lead	0.030	0.014
Mercury	0.016	0.006
Total suspended solids	1.590	1.272
pH	(¹)	(¹)

[1] Within the range of 7.5 to 10.0 at all times.

(b) Acid wash and rinse water.

NSPS FOR THE SECONDARY MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury washed and rinsed	
Lead	0.00058	0.00026
Mercury	0.00030	0.00012
Total suspended solids	0.03000	0.02400
pH	(¹)	(¹)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Furnace wet air pollution control.

NSPS FOR THE SECONDARY MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury processed through furnace	
Lead	0.000	0.000
Mercury	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

[1] Within the range of 7.5 to 10.0 at all times.

§ 421.205 [Reserved].

§ 421.206 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in secondary mercury process wastewater introduced into a POTW shall not exceed the following values:

(a) Spent battery electrolyte.

PSNS FOR THE SECONDARY MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury produced from batteries	
Lead	0.030	0.014
Mercury	0.016	0.006

(b) Acid wash and rinse water.

PSNS FOR THE SECONDARY MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury washed and rinsed	
Lead	0.00058	0.00026
Mercury	0.00030	0.00012

(c) Furnance wet air pollution control.

PSNS FOR THE SECONDARY MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds of mercury processed through furnace	
Lead	0.000	0.000
Mercury	0.000	0.000

§ 421.207 [Reserved].

Subpart S—Primary Molybdenum and Rhenium Subcategory

§ 421.210 Applicability: description of the primary molybdenum and rhenium subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of molybdenum and rhenium facilities.

§ 421.211 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

§ 421.212 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitation representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

(a) Molybdenum sulfide leachate.

BPT LIMITATIONS FOR THE PRIMARY MOLYBDENUM RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum monthly average
	mg/kg (pounds per million pounds) of molybdenum sulfide leached	
Arsenic	0.968	0.431
Lead	0.195	0.093
Nickle	0.889	0.588
Selenium	0.570	0.255
Molybdenum	3.060	1.583
Ammonia (as N)	61.720	27.130
Fluoride	16.210	9.214
Total suspended solids	18.980	9.029
pH	(1)	(1)

[1]Within the range of 7.5 to 10.0 at all times.

(b) Roaster SO_2 scrubber.

BPT LIMITATIONS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant of pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum sulfide roasted	
Arsenic	3.509	1.561
Lead	0.705	0.336
Nickel	3.224	2.133
Selenium	2.065	0.924
Molybdenum	1.100	5.742
Ammonia (as N)	223.800	98.390
Fluoride	58.770	33.410
Total suspended solids	68.840	32.740
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Molybdic oxide leachate.

BPT LIMITATIONS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum contained in molybdic oxide leached	
Arsenic	24.210	10.770
Lead	4.865	2.317
Nickel	22.240	14.710
Selenium	14.250	6.371
Molybdenum	76.570	39.620
Ammonia (as N)	1,544.000	678.800
Flouride	405.400	230.500
Total suspended solids	474.900	225.900
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(d) Hydrogen reduction furnace scrubber.

BPT LIMITATIONS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum metal powder produced	
Arsenic	47.860	21.300
Lead	9.617	4.580
Nickel	43.970	29.080
Selenium	28.170	12.600
Molybdenum	151.400	78.310
Ammonia (as N)	3,052.000	1,342.000
Fluoride	801.400	455.700
Total suspended solids	938.800	446.500
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(e) Depleted rhenium scrubbing solution.

BPT LIMITATIONS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum sulfide roasted	
Arsenic	1.497	0.666
Lead	0.301	0.143
Nickel	1.375	0.909
Selenium	0.881	0.394
Molybdenum	4.733	2.449
Ammonia (as N)	95.440	41.960
Fluoride	25.060	14.250
Total suspended solids	29.360	13.960
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

§ 421.213 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Molybdenum sulfide leachate.

BAT LIMITATIONS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds million pounds) of molybdenum sulfide leached	
Arsenic	0.644	0.287
Lead	0.130	0.060
Nickel	0.255	0.171
Selenium	0.380	0.171
Molybdenum	2.329	1.032
Ammonia (as N)	61.720	27.130
Fluoride	16.210	9.214

(b) Roaster SO_2 scrubber.

BAT LIMITATIONS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds) of molybdenum sulfide roasted	
Arsenic	2.334	1.041
Lead	0.470	0.218
Nickel	0.924	0.621
Selenium	1.377	0.621
Molybdenum	8.445	3.744
Ammonia (as N)	223.800	98.390
Fluoride	58.770	33.410

(c) Molybdic oxide leachate.

BAT LIMITATIONS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds) of molybdenum contained in molybdic oxide leached	
Arsenic	16.100	7.182
Lead	3.244	1.506
Nickel	6.371	4.286
Selenium	9.499	4.286
Molybdenum	58.270	25.830
Ammonia (as N)	1,544.000	678.800
Fluoride	405.400	230.500

(d) Hydrogen reduction furnace scrubber.

BAT LIMITATIONS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds) of molybdenum metal powder produced	
Arsenic	3.183	1.420
Lead	0.641	0.298
Nickel	1.260	0.847
Selenium	1.878	0.847
Molybdenum	11.520	5.107
Ammonia (as N)	305.300	134.200
Fluoride	80.150	45.570

(e) Depleted rhenium scrubbing solution.

BAT LIMITATIONS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds) of molybdenum sulfide roasted	
Arsenic	0.995	0.444
Lead	0.201	0.093
Nickel	0.394	0.265
Selenium	0.587	0.265
Molybdenum	3.601	1.597
Ammonia (as N)	95.440	41.960
Fluoride	25.060	14.250

§ 421.214 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Molybdenum sulfide leachate.

NSPS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum sulfide leached	
Arsenic	0.644	0.287
Lead	0.130	0.060
Nickel	0.255	0.171
Selenium	0.380	0.171
Molybdenum	2.329	1.032
Ammonia (as N)	61.720	27.130
Fluoride	16.210	9.214
Total suspended solids	6.945	5.556
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(b) Roaster SO_2 scrubber.

NSPS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum sulfide roasted	
Arsenic	2.334	1.041
Lead	0.470	0.218
Nickel	0.924	0.621
Selenium	1.377	0.621
Molybdenum	8.445	3.744
Ammonia (as N)	223.600	98.390
Fluoride	58.770	33.410
Total suspended solids	25.190	20.150
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(c) Molybdic oxide leachate.

NSPS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum contained in molybdic oxide leached	
Arsenic	16.100	7.182
Lead	3.244	1.506
Nickel	6.371	4.286
Selenium	9.499	4.286
Molybdenum	58.270	25.830
Ammonia (as N)	1,544.000	678.800
Fluoride	405.400	230.500
Total suspended solids	173.800	139.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(d) Hydrogen reduction furnace scrubber.

NSPS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum metal powder produced	
Arsenic	3.163	1.420
Lead	0.641	0.298
Nickel	1.260	0.847
Selenium	1.878	0.847
Molybdenum	11.520	5.107
Ammonia (as N)	305.300	134.200
Fluoride	80.150	45.570
Total suspended solids	34.350	27.480
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(e) Depleted rhenium scrubbing solution.

NSPS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum sulfide roasted	
Arsenic	0.995	0.444
Lead	0.201	0.093
Nickel	0.394	0.265
Selenium	0.587	0.265
Molybdenum	3.601	1.597
Ammonia (as N)	95.440	41.960
Fluoride	25.060	14.250
Total suspended solids	10.740	8.592
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.215 [Reserved].

§ 421.216 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in primary molybdenum and rhenium process wastewater introduced into a POTW shall not exceed the following values:

(a) Molybdenum sulfide leachate.

PSNS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum sulfide leached	
Arsenic	0.644	0.287
Lead	0.130	0.060
Nickel	0.255	0.171
Selenium	0.380	0.171
Molybdenum	2.329	1.032
Ammonia (as N)	61.720	27.130
Fluoride	16.210	9.214

(b) Roaster SO_2 scrubber.

PSNS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum sulfide roasted	
Arsenic	2.334	1.041
Lead	0.470	0.218
Nickel	0.924	0.621
Selenium	1.377	0.621
Molybdenum	8.445	3.744
Ammonia (as N)	223.800	98.390
Fluoride	58.770	33.410

(c) Molybdic oxide leachate.

PSNS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum contained in molybdic oxide leached	
Arsenic	16.100	7.182
Lead	3.244	1.506
Nickel	6.371	4.286
Selenium	9.499	4.286
Molybdenum	58.270	25.830
Ammonia (as N)	1,544.000	678.800
Fluoride	405.400	230.500

(d) Hydrogen reduction furnace scrubber.

PSNS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum metal powder produced	
Arsenic	3.183	1.420
Lead	0.641	0.298
Nickel	1.260	0.847
Selenium	1.878	0.847
Molybdenum	11.520	5.107
Ammonia (as N)	305.300	134.200
Fluoride	80.150	45.570

(e) Depleted rhenium scrubbing solution.

PSNS FOR THE PRIMARY MOLYBDENUM AND RHENIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum sulfide roasted	
Arsenic	0.995	0.444
Lead	0.201	0.093
Nickel	0.394	0.265
Selenium	0.587	0.265
Molybdenum	3.601	1.597
Ammonia (as N)	85.440	41.960
Fluoride	25.060	14.250

§ 421.217 [Reserved].

Subpart T—Secondary Molybdenum and Vanadium Subcategory

§ 421.220 Applicability: description of the secondary molybdenum and vanadium subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of molybdenum or vanadium by secondary molybdenum and vanadium facilities.

§ 421.221 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

§ 421.222 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

(a) Leach tailings.

BPT LIMITATIONS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum and vanadium produced	
Arsenic	26.210	11.660
Chromium	5.518	2.257
Lead	5.267	2.508
Nickel	24.080	15.930
Iron	15.050	7.649
Molybdenum	82.890	42.890
Ammonia (as N)	5,192.000	2,282.000
Total suspended solids	514.100	244.500
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(b) Molybdenum filtrate solvent extraction raffinate.

BPT LIMITATIONS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum and vanadium produced	
Arsenic	126.50	56.31
Chromium	26.64	10.90
Lead	25.43	12.11
Nickel	116.30	76.90
Iron	72.66	36.93
Molybdenum	400.20	207.10
Ammonia (as N)	25,070.00	11,020.00
Total suspended solids	2,482.00	1,181.00
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(c) Vanadium decomposition wet air pollution control.

BPT LIMITATIONS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of vanadium produced by decomposition	
Arsenic	0.000	0.000
Chromium	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Iron	0.000	0.000
Molybdenum	0.000	0.000
Ammonia (as N)	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(d) Molybdenum drying wet air pollution control.

BPT LIMITATIONS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum produced	
Arsenic	0.000	0.000
Chromium	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Iron	0.000	0.000
Molybdenum	0.000	0.000
Ammonia (as N)	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.223 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Leach tailings.

BAT LIMITATIONS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum and vanadium produced	
Arsenic	17.430	7.775
Chromium	4.640	1.881
Lead	3.511	1.630
Nickel	6.897	4.640
Iron	15.050	7.649
Molybdenum	63.080	27.960
Ammonia (as N)	5,192.000	2,282.000

(b) Molybdenum filtrate solvent extraction raffinate.

BAT LIMITATIONS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum and vanadium produced	
Arsenic	84.160	37.540
Chromium	22.400	9.082
Lead	16.950	7.871
Nickel	33.300	22.400
Iron	72.660	36.930
Molybdenum	304.600	135.000
Ammonia (as N)	25,070.000	11,020.00

(c) Vanadium decomposition wet air pollution control.

BAT LIMITATIONS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of vanadium produced by decomposition	
Arsenic	0.000	0.000
Chromium	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Iron	0.000	0.000
Molybdenum	0.000	0.000
Ammonia (as N)	0.000	0.000

(d) Molybdenum drying wet air pollution control.

BAT LIMITATIONS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum produced	
Arsenic	0.000	0.000
Chromium	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Iron	0.000	0.000
Molybdenum	0.000	0.000
Ammonia (as N)	0.000	0.000

§ 421.224 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Leach tailings.

NSPS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum and vanadium produced	
Arsenic	17.430	7.775
Chromium	4.640	1.881
Lead	3.511	1.630
Nickel	6.897	4.640
Iron	15.050	7.649
Molybdenum	63.080	27.960
Ammonia (as N)	5,192.000	2,282.000
Total suspended solids	188.100	150.500
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(b) Molybdenum filtrate solvent extraction raffinate.

NSPS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum and vanadium produced	
Arsenic	84.160	37.540
Chromium	22.400	9.082
Lead	16.950	7.871
Nickel	33.300	22.400
Iron	72.660	36.930
Molybdenum	304.600	135.000
Ammonia (as N)	25,070.000	11,020.000
Total suspended solids	908.200	726.600
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(c) Vanadium decomposition wet air pollution control.

NSPS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum and vanadium produced	
Arsenic	0.000	0.000
Chromium	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Iron	0.000	0.000
Molybdenum	0.000	0.000
Ammonia (as N)	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(d) Molybdenum drying wet air pollution control.

NSPS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum and vanadium produced	
Arsenic	0.000	0.000
Chromium	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Iron	0.000	0.000
Molybdenum	0.000	0.000
Ammonia (as N)	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.225 [Reserved].

§ 421.226 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in secondary molybdenum and vanadium process wastewater introduced into a POTW shall not exceed the following values:

(a) Leach tailings.

PSNS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum and vanadium produced	
Arsenic	17.430	7.775
Chromium	4.640	1.881
Lead	3.511	1.630
Nickel	6.897	4.640
Iron	15.050	7.649
Molybdenum	63.080	27.960
Ammonia (as N)	5,192.000	2,282.000

(b) Molybdenum filtrate solvent extraction raffinate.

PSNS FOR THE SECONDARY MOLYBDENUM AND VANADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum and vanadium produced	
Arsenic	84.160	37.540
Chromium	22.400	9.082
Lead	16.950	7.871
Nickel	33.300	22.400
Iron	72.660	36.930
Molybdenum	304.600	135.000
Ammonia (as N)	25,070.000	11,020.000

(c) Vanadium decomposition wet air pollution control.

PSNS FOR THE SECONDARY MOLYBDENUM AND VANDADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) vanadium produced by decomposition	
Arsenic	0.000	0.000
Chromium	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Iron	0.000	0.000
Molybdenum	0.000	0.000
Ammonia (as N)	0.000	0.000

(d) Molybdenum drying wet air pollution control.

PSNS FOR THE SECONDARY MOLYBDENUM AND VANDADIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of molybdenum produced	
Arsenic	0.000	0.000
Chromium	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Iron	0.000	0.000
Molybdenum	0.000	0.000
Ammonia (as N)	0.000	0.000

§ 421.227 [Reserved].

Subpart U—Primary Nickel and Cobalt Subcategory

§ 421.230 Applicability: description of the primary nickel and cobalt subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of nickel or cobalt by primary nickel and cobalt facilities processing ore concentrate raw materials.

§ 421.231 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

§421.232 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

(a) Raw Material dust control.

BPT LIMITATIONS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of copper, nickel, and cobalt in the crushed raw material	
Copper	0.146	0.077
Nickel	0.148	0.098
Ammonia (as N)	10.260	4.512
Cobalt	0.016	0.007
Total suspended solids	3.157	1.502
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(b) Nickel wash water.

BPT LIMITATIONS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of nickel powder washed	
Copper	0.064	0.034
Nickel	0.065	0.043
Ammonia (as N)	4.515	1.985
Cobalt	0.007	0.003
Total suspended solids	1.389	0.660
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Nickel reduction decant.

BPT LIMITATIONS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of nickel produced	
Copper	24.120	12.700
Nickel	24.370	16.120
Ammonia (as N)	1,692.000	743.900
Cobalt	2.666	1.143
Total suspended solids	520.500	247.600
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(d) Cobalt reduction decant.

BPT LIMITATIONS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	40.660	21.400
Nickel	41.080	27.180
Ammonia (as N)	2,852.000	1,254.000
Cobalt	4.494	1.926
Total suspended solids	877.300	417.300
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

§ 421.233 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Raw material dust control.

BAT LIMITATIONS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of copper, nickel, and cobalt in the crushed raw material	
Copper	0.099	0.047
Nickel	0.042	0.028
Ammonia (as N)	10.260	4.512
Cobalt	0.011	0.005

(d) Nickel wash water.

BAT LIMITATIONS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of nickel powder washed	
Copper	0.043	0.021
Nickel	0.019	0.013
Ammonia (as N)	4.515	1.985
Cobalt	0.005	0.002

(c) Nickel reduction decant.

BAT LIMITATIONS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of nickel produced	
Copper	16.250	7.744
Nickel	6.982	4.697
Ammonia (as N)	1,692.000	743.900
Cobalt	1.777	0.689

(d) Cobalt reduction decant.

BAT LIMITATIONS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	27.390	13.050

BAT LIMITATIONS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Nickel	11.770	7.917
Ammonia (as N)	2,852.000	1,254.000
Cobalt	2.996	1.498

§ 421.234 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Raw Material Dust Control.

NSPS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of copper, nickel, and cobalt in the crushed raw material	
Copper	0.099	0.047
Nickel	0.042	0.028
Ammonia (as N)	10.260	4.512
Cobalt	0.011	0.005
Total suspended solids	1.155	0.924
pH	[1]	[1]

[1] Within the range of 7.5 to 10.0 at all times.

(b) Nickel wash water.

NSPS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of nickel powder washed	
Copper	0.043	0.021
Nickel	0.019	0.013
Ammonia (as N)	4.515	1.985
Cobalt	0.005	0.002
Total suspended solids	0.508	0.406
pH	[1]	[1]

[1] Within the range of 7.5 to 10.0 at all times.

(c) Nickel reduction decant.

NSPS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of nickel produced	
Copper	16.250	7.744
Nickel	6.982	4.697
Ammonia (as N)	1,692.000	743.900
Cobalt	1.777	0.889
Total suspended solids	190.400	152.300
pH	[1]	[1]

[1] Within the range of 7.5 to 10.0 at all times.

(d) Cobalt reduction decant.

NSPS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	27.390	13.050
Nickel	11.770	7.917
Ammonia (as N)	2,852.000	1,254.000
Cobalt	2.996	1.498
Total suspended solids	321.000	256.800
pH	[1]	[1]

[1] Within the range of 7.5 to 10.0 at all times.

§ 421.235 [Reserved].

§ 421.236 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with a 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in primary nickel and cobalt process wastewater introduced into a POTW shall not exceed the following values:

(a) Raw material dust control.

PSNS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of copper, nickel, and cobalt in the crushed raw material	
Copper	0.099	0.047
Nickel	0.042	0.028
Ammonia (as N)	10.260	4.512
Cobalt	0.011	0.005

(b) Nickel wash water.

PSNS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of nickel powder washed	
Copper	0.043	0.021
Nickel	0.019	0.013
Ammonia (as N)	4.515	1.985
Cobalt	0.005	0.002

(c) Nickel reduction decant.

PSNS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) nickel produced	
Copper	16.250	7.744
Nickel	6.982	4.697
Ammonia (as N)	1,692.000	743.900
Cobalt	1.777	0.889

(d) Cobalt reduction decant.

PSNS FOR THE PRIMARY NICKEL AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	27.390	13.050
Nickel	11.770	7.917
Ammonia (as N)	2,852.000	1,254.000
Cobalt	2.996	1.498

§ 421.237 [Reserved].

Subpart V—Secondary Nickel Subcategory

§ 421.240 Applicability: description of the secondary nickel subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of nickel by secondary nickel facilities processing slag, spent acids, or scrap metal raw materials.

§ 421.241 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

§ 421.242 [Reserved].

§ 421.243 [Reserved].

§ 421.244 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Slag reclaim tailings.

NSPS FOR THE SECONDARY NICKEL SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of slag input to reclaim process	
Chromium (total)	5.653	2.313
Copper	24.410	12.850
Nickel	24.670	16.320
Total suspended solids	526.800	250.500
pH	([1])	([1])

[1] Within the range of 7.5 to 10.0 at all times.

(b) Acid reclaim leaching filtrate.

NSPS FOR THE SECONDARY NICKEL SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of acid reclaim nickel produced	
Chromium (total)	2.198	0.899
Copper	9.491	4.995
Nickel	9.590	6.344
Total suspended solids	204.800	97.400
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(c) Acid reclaim leaching belt filter backwash.

NSPS FOR THE SECONDARY NICKEL SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of acid reclaim nickel produced	
Chromium (total)	0.528	0.216
Copper	2.278	1.199
Nickel	2.302	1.523
Total suspended solids	49.160	23.380
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.245 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources. The mass of wastewater pollutants in secondary nickel process wastewater introduced into a POTW must not exceed the following values:

(a) Slag reclaim tailings.

PSES FOR THE SECONDARY NICKEL SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of slag input to reclaim process	
Chromium (total)	5.653	2.313
Copper	24.410	12.850
Nickel	24.670	16.320

(b) Acid reclaim leaching filtrate.

PSES FOR THE SECONDARY NICKEL SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of acid reclaim nickel produced	
Chromium (total)	2.198	0.899
Copper	9.491	4.995
Nickel	9.590	6.344

(c) Acid reclaim leaching belt filter backwash

PSES FOR THE SECONDARY NICKEL SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of acid reclaim nickel produced	
Chromium (total)	0.528	0.216
Copper	2.278	1.199
Nickel	2.302	1.523

§ 421.246 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in secondary nickel process wastewater introduced into a POTW shall not exceed the following values:

(a) Slag reclaim tailings.

PSNS FOR THE SECONDARY NICKEL SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of slag input to reclaim process	
Chromium (total)	5.653	2.313
Copper	24.410	12.850
Nickel	24.670	16.320

(b) Acid reclaim leaching filtrate.

PSNS FOR THE SECONDARY NICKEL SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of acid reclaim nickel produced	
Chromium (total)	2.198	0.899
Copper	9.491	4.995
Nickel	9.590	6.344

(c) Acid reclaim leaching belt filter backwash.

PSNS FOR THE SECONDARY NICKEL SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of acid reclaim nickel produced	
Chromium (total)	0.528	0.216
Copper	2.278	1.199
Nickel	2.302	1.523

§ 421.247 [Reserved].

Subpart W—Primary Precious Metals and Mercury Subcategory

§ 421.250 Applicability: description of the primary precious metals and mercury subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of gold, silver, or mercury by primary precious metals and mercury facilities.

§ 421.251 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

§ 421.252 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

(a) Smelter wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold and silver smelted	
Lead	0.546	0.260
Mercury	0.325	0.130
Silver	0.533	0.221
Zinc	1.898	0.793
Gold	0.130	
Oil and grease	26.000	15.600
Total suspended solids	53.300	25.350
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(b) Silver chloride reduction spent solution.

BPT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant of pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of silver reduced in solution	
Lead	0.168	0.080
Mercury	0.100	0.040
Silver	0.164	0.068
Zinc	0.584	0.244
Gold	0.040	
Oil and grease	8.000	4.800
Total suspended solids	16.400	7.800
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(c) Electrolytic cells wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold refined electrolytically	
Lead	83.160	39.600
Mercury	49.500	19.800
Silver	81.180	33.660
Zinc	289.100	120.800
Gold	19.800	
Oil and grease	3,960.000	2,376.000
Total suspended solids	8,118.000	3,861.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(d) Electrolyte preparation wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of silver in electrolyte produced	
Lead	0.021	0.010
Mercury	0.013	0.005
Silver	0.021	0.009
Zinc	0.073	0.031
Gold	0.005	
Oil and Grease	1.000	0.600
Total suspended solids	2.050	0.975
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(e) Calciner wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	78.200	37.240
Mercury	46.550	16.620
Silver	76.340	31.650
Zinc	271.900	113.600
Gold	16.600	
Oil and Grease	3,724.000	2,234.000
Total suspended solids	7,634.000	3,631.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(f) Calcine quench water.

BPT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	7.392	3.520
Mercury	4.400	1.760
Silver	7.216	2.992
Zinc	25.700	10.740
Gold	1.760	
Oil and Grease	352.000	211.200
Total suspended solids	721.600	343.200
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(g) Calciner stack gas contact cooling water.

BPT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	1.743	0.830
Mercury	1.038	0.415
Silver	1.702	0.706
Zinc	6.059	2.532
Gold	0.415	
Oil and Grease	83.000	49.800
Total suspended solids	170.200	80.930
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(h) Condenser blowdown.

BPT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	5.796	2.760
Mercury	3.450	1.380
Silver	5.658	2.346
Zinc	20.150	8.418
Gold	1.380	
Oil and Grease	276.000	165.600
Total suspended solids	565.800	269.100
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(i) Mercury cleaning bath water.

BPT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	0.588	0.280
Mercury	0.350	0.140
Silver	0.574	0.238
Zinc	2.044	0.854
Gold	0.140	
Oil and Grease	28.000	16.800
Total suspended solids	57.400	27.300
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.253 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Smelter wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold and silver smelted	
Lead	0.364	0.169
Mercury	0.195	0.076
Silver	0.377	0.156
Zinc	1.326	0.546
Gold	0.130	

(b) Silver chloride reduction spent solution.

BAT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of silver reduced in solution	
Lead	0.112	0.052
Mercury	0.060	0.024
Silver	0.116	0.048
Zinc	0.408	0.168
Gold	0.040	

(c) Electrolytic cells wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold refined electrolytically	
Lead	5.544	2.574
Mercury	2.970	1.188
Silver	5.742	2.376
Zinc	20.200	8.316
Gold	1.980	

(d) Electrolyte preparation wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of silver in electrolyte produced	
Lead	0.014	0.007
Mercury	0.008	0.003
Silver	0.015	0.006
Zinc	0.051	0.021
Gold	0.005	

(e) Calciner Wet Air Pollution Control.

BAT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	6.160	2.860
Mercury	3.300	1.320
Silver	6.380	2.640
Zinc	22.440	9.240
Gold	2.200	

(f) Calcine quench water.

BAT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	4.928	2.288
Mercury	2.640	1.056
Silver	5.104	2.112
Zinc	17.950	7.392
gold	1.760	

(g) Calciner stack gas contact cooling water.

BAT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	1.162	0.540
Mercury	0.623	0.249
Silver	1.204	0.498
Zinc	4.233	1.743
gold	0.415	

(h) Condenser blowdown.

BAT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	3.864	1.794
Mercury	2.070	0.828
Silver	4.002	1.656
Zinc	14.080	5.796
gold	1.380	

(i) Mercury cleaning bath water.

BAT LIMITATIONS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	0.392	0.182
Mercury	0.210	0.084
Silver	0.406	0.168
Zinc	1.428	0.588
Gold	0.140	

§ 421.254 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Smelter wet air pollution control.

NSPS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold and silver smelted	
Lead	0.364	0.169
Mercury	0.195	0.078
Silver	0.377	0.156
Zinc	1.326	0.546
Gold	0.130	
Oil and Grease	13.000	13.000
Total suspended solids	19.500	15.600
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(b) Silver chloride reduction spent solution.

NSPS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of silver reduced in solution	
Lead	0.112	0.052
Mercury	0.060	0.024
Silver	0.116	0.048
Zinc	0.408	0.168
Gold	0.040	
Oil and Grease	4.000	4.000
Total suspended solids	6.000	4.800
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(c) Electrolytic cells wet air pollution control.

NSPS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold refined electrolytically	
Lead	5.544	2.574
Mercury	2.970	1.188
Silver	5.742	2.376
Zinc	20.200	8.316
Gold	1.980	
Oil and Grease	198.000	198.000
Total suspended solids	297.000	237.600
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(d) Electrolyte preparation wet air pollution control.

NSPS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of silver in electrolyte produced	
Lead	0.014	0.007
Mercury	0.008	0.003
Silver	0.015	0.006
Zinc	0.051	0.021
Gold	0.005	
Oil and Grease	0.500	0.500
Total suspended solids	0.750	0.600
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(e) Calciner wet air pollution control.

NSPS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	6.160	2.860
Mercury	3.300	1.320
Silver	6.380	2.640
Zinc	22.440	9.240

NSPS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Gold	2.200	
Oil and Grease	220.000	220.000
Total suspended solids	330.000	264.000
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(f) Calcine quench water.

NSPS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	4.928	2.288
Mercury	2.640	1.056
Silver	5.104	2.112
Zinc	17.950	7.392
Gold	1.760	
Oil and Grease	176.000	176.000
Total suspended solids	264.000	211.200
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(g) Calciner stack gas contract cooling water.

NSPS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) or mercury condensed	
Lead	1.162	0.540
Mercury	0.623	0.249
Silver	1.204	0.498
Zinc	4.233	1.743
Gold	0.415	
Oil and Grease	41.500	41.500
Total suspended solids	62.250	49.800
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(h) Condenser blowdown.

NSPS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condenses	
Lead	3.864	1.794
Mercury	2.070	0.828
Silver	4.002	1.656
Zinc	14.080	5.796
Gold	1.380	
Oil and Grease	138.000	138.000
Total suspended solids	207.000	165.600
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(i) Mercury cleaning bath water.

NSPS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of Mercury condensed	
Lead	0.392	0.182
Mercury	0.210	0.084
Silver	0.406	0.168
Zinc	1.428	0.588
Gold	0.140	
Oil and Grease	14.000	14.000
Total suspended solids	21.000	16.800
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.255 [Reserved].

§ 421.256 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in primary precious metals and mercury process wastewater introduced into a POTW shall not exceed the following values:

(a) Smelter wet air pollution control.

PSNS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold and silver smelted	
Lead	0.364	0.169
Mercury	0.195	0.078
Silver	0.377	0.156
Zinc	1.326	0.546
Gold	0.130	

(b) Silver chloride reduction spent solution.

PSNS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of silver reduced in solution	
Lead	0.112	0.052
Mercury	0.060	0.024
Silver	0.116	0.048
Zinc	0.408	0.168
Gold	0.040	

(c) Electrolytic cells wet air pollution control.

PSNS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold refined electrolytically	
Lead	5.544	2.574
Mercury	2.970	1.188
Silver	5.742	2.376
Zinc	20.200	8.316
Gold	1.980	

(d) Electrolyte preparation wet air pollution control.

PSNS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of silver in electrolyte produced	
Lead	0.014	0.007
Mercury	0.008	0.003
Silver	0.015	0.006
Zinc	0.051	0.021
Gold	0.005	

(e) Calciner wet air pollution control.

PSNS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	6.160	2.860
Mercury	3.300	1.320
Silver	6.380	2.640
Zinc	22.440	9.240
Gold	2.200	

(f) Calcine quench water.

PSNS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	4.928	2.288
Mercury	2.640	1.056
Silver	5.104	2.112
Zinc	17.950	7.392
Gold	1.760	

(g) Calciner stack gas contact cooling water.

PSNS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	1.162	0.540
Mercury	0.623	0.249
Silver	1.204	0.498
Zinc	4.233	1,743
Gold	0.415	

(h) Condenser blowdown.

PSNS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	3.864	1.794
Mercury	2.070	0.828
Silver	4.002	1.656
Zinc	14.080	5.656
Gold	1.380	

(i) Mercury cleaning bath water.

PSNS FOR THE PRIMARY PRECIOUS METALS AND MERCURY SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mercury condensed	
Lead	0.392	0.182
Mercury	0.210	0.084
Silver	0.406	0.168
Zinc	1.428	0.588
Gold	0.140	

§ 421.257 [Reserved].

Subpart X—Secondary Precious Metals Subcategory

§ 421.260 Applicability: description of the secondary precious metals subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of precious metals at secondary precious metals facilities.

§ 421.261 Specialized definitions.

For the purpose of this subpart:

(a) Except as provided below, the general definitions, abbreviations, and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

(b) The term "precious metals" shall mean gold, platinum, palladium, rhodium, iridium, osmium, and ruthenium.

§ 421.262 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

(a) Furnace wet air pollution control.

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, incinerated or smelted	
Copper	136.400	71.800
Cyanide (total)	20.820	8.616
Zinc	104.800	43.800
Ammonia (as N)	9,571.000	4,207.000
Gold	7.180	
Platinum	7.180	
Palladium	7.180	
Total suspended solids	2,944.000	1,400.000
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(b) Raw material granulation.

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metal in the granulated raw material	
Copper	12.050	6.340
Cyanide (total)	1.839	0.761
Zinc	9.256	3.867
Ammonia (as N)	845.100	371.500
Gold	0.634	
Platinum	0.634	
Palladium	0.634	
Total suspended solids	259.900	123.600
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(c) Spent plating solutions.

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/liter of spent plating solution used as a raw material	
Copper	1.900	1.000
Cyanide (total)	0.290	0.120
Zinc	1.460	0.610
Ammonia (as N)	133.300	58.600
Gold	0.100	
Platinum	0.100	
Palladium	0.100	
Total suspended solids	41.000	19.500
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(d) Spent cyanide stripping solutions.

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by cyanide stripping	
Copper	7.030	3.700
Cyanide (total)	1.073	0.444
Zinc	5.402	2.257
Ammonia (as N)	493.200	216.800
Gold	0.370	
Platinum	0.370	
Palladium	0.370	
Total suspended solids	151.700	72.150
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(e) Refinery wet air pollution control.

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, produced in refinery	
Copper	39.900	21.000
Cyanide (total)	6.090	2.520
Zinc	30.660	12.810
Ammonia (as N)	2,799.000	1,231.000
Gold	2.100	
Platinum	2.100	
Palladium	2.100	
Total suspended solids	861.000	409.500
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at alltimes.

(f) Gold solvent extraction raffinate and wash water.

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by solvent extraction	
Copper	1.197	0.630
Cyanide (total)	0.183	0.076
Zinc	0.920	0.384
Ammonia (as N)	83.980	36.920
Gold	0.063	
Platinum	0.063	
Palladium	0.063	
Total suspended solids	25.830	12.290
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(g) Gold spent electrolyte.

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by electrolysis	
Copper	0.017	0.009
Cyanide (total)	0.003	0.001

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Zinc	0.103	0.005
Ammonia (as N)	1.160	0.510
Gold	0.001	
Platinum	0.001	
Palladium	0.001	
Total suspended solids	0.357	0.170
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(h) Gold precipitation and filtration.

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold precipitated	
Copper	8.360	4.400
Cyanide (total)	1.276	0.528
Zinc	6.424	2.684
Ammonia (as N)	586.500	257.800
Gold	0.440	
Platinum	0.440	
Palladium	0.440	
Total suspended solids	180.400	85.800
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(i) Platinum precipitation and filtration.

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of platinum precipitated	
Copper	9.880	5.200
Cyanide (total)	1.508	0.624
Zinc	7.592	3.172
Ammonia (as N)	693.200	304.700
Gold	0.520	
Platinum	0.520	
Palladium	0.520	
Total suspended solids	213.200	101.400
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(j) Palladium precipitation and filtration.

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of palladium precipitated	
Copper	6.650	3.500
Cyanide (total)	1.015	0.420
Zinc	5.110	2.135
Ammonia (as N)	466.600	205.100
Gold	0.350	
Platinum	0.350	
Palladium	0.350	
Total suspended solids	143.500	68.250
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(k) Other platinum group metals precipitation and filtration.

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of other platinum group metals precipitated	
Copper	9.880	5.200
Cyanide (total)	1.508	0.624
Zinc	7.592	3.172
Ammonia (as N)	693.200	304.700
Gold	0.520	
Platinum	0.520	
Palladium	0.520	
Total suspended solids	213.200	101.400
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(l) Spent solution from PGC salt production.

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold contained in PGC product	
Copper	1.710	0.900
Cyanide (total)	0.261	0 108
Zinc	1.314	0.549
Ammonia (as N)	120.000	52.740
Gold	0.090	
Platinum	0.090	
Palladium	0.090	
Total suspended solids	36.900	17.550
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(m) Equipment and floor wash.

BPT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, produced in refinery	
Copper	0.000	0.000
Cyanide (total)	0.000	0.000
Zinc	0.000	0.000
Ammonia (as N)	0.000	0.000
Gold	0.000	0.000
Platinum	0.000	0.000
Palladium	0.000	0.000
Total suspended solids	0.000	0.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

§ 421.263 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Furnace wet air pollution control.

BAT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, incinerated or smelted	
Copper	5.760	2.745
Cyanide (total)	0.900	0.360
Zinc	4.590	1.890
Gold	0.450	
Palladium	0.450	
Platinum	0.450	
Ammonia (as N)	599.900	263.700

(b) Raw material granulation.

BAT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals in the granulated raw material	
Copper	0.819	0.390
Cyanide (total)	0.128	0.051
Zinc	0.653	0.269
Gold	0.064	
Palladium	0.064	
Platinum	0.064	
Ammonia (as N)	85.310	37.500

(c) Spent plating solutions.

BAT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/liter of spent plating solution used as a raw material	
Copper	1.280	0.610
Cyanide (total)	0.200	0.080
Zinc	1.020	0.420
Gold	0.100	
Palladium	0.100	
Platinum	0.100	
Ammonia (as N)	133.300	58.600

(d) Spent cyanide stripping solutions.

BAT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by cyanide stripping	
Copper	4.736	2.257
Cyanide (total)	0.740	0.296
Zinc	3.774	1.554
Gold	0.370	
Palladium	0.370	
Platinum	0.370	
Ammonia (as N)	493.200	216.800

(e) Refinery wet air pollution control.

BAT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, produced in refinery	
Copper	1.280	0.610
Cyanide (total)	0.200	0.080
Zinc	1.020	0.420
Gold	0.100	
Palladium	0.100	
Platinum	0.100	
Ammonia (as N)	133.300	58.600

(f) Gold solvent extraction raffinate and wash water.

BAT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by solvent extraction	
Copper	0.806	0.384
Cyanide (total)	0.126	0.050
Zinc	0.643	0.265
Gold	0.063	
Palladium	0.063	
Platinum	0.063	
Ammonia (as N)	83.980	36.920

(g) Gold spent electrolyte.

BAT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by electrolysis	
Copper	0.0111	0.0053
Cyanide (total)	0.0017	0.0007
Zinc	0.0089	0.0037
Gold	0.0010	
Palladium	0.0010	
Platinum	0.0010	
Ammonia (as N)	1.1600	0.5100

(h) Gold precipitation and filtration.

BAT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold precipitated	
Copper	5.632	2.684
Cyanide (total)	0.880	0.352
Zinc	4.488	1.848
Gold	0.440	
Palladium	0.440	
Platinum	0.440	
Ammonia (as N)	586.500	257.800

(i) Platinum precipitation and filtration.

BAT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of platinum precipitated	
Copper	6.656	3.172
Cyanide (total)	1.040	0.416
Zinc	5.304	2.184
Gold	0.520	
Palladium	0.520	
Platinum	0.520	
Ammonia (as N)	693.200	304.700

(j) Palladium precipitation and filtration.

BAT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of palladium precipitated	
Copper	4.480	2.135
Cyanide (total)	0.700	0.280
Zinc	3.570	1.470
Gold	0.350	
Palladium	0.350	
Platinum	0.350	
Ammonia (as N)	466.600	205.100

(k) Other platinum group metals precipitation and filtration.

BAT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of other platinum group metals precipitated	
Copper	6.656	3.172
Cyanide (total)	1.040	0.416
Zinc	5.304	2.184
Gold	0.520	
Palladium	0.520	
Platinum	0.520	0.520
Ammonia (as N)	693.200	304.700

(l) Spent solutions from PGC salt production.

BAT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold contained in PGC product	
Copper	1.152	0.549
Cyanide (total)	0.180	0.072
Zinc	0.918	0.378
Gold	0.090	
Palladium	0.090	
Platinum	0.090	
Ammonia (as N)	120.000	52.740

(m) Equipment and floor wash.

BAT LIMITATIONS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, produced in refinery	
Copper	0.000	0.000
Cyanide (total)	0.000	0.000
Zinc	0.000	0.000
Gold	0.000	
Palladium	0.000	
Platinum	0.000	
Ammonia (as N)	0.000	0.000

§ 421.264 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Furnace wet air pollution control.

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, incinerated or smelted	
Copper	5.760	2.745
Cyanide (total)	0.900	0.360
Zinc	4.590	1.890
Gold	0.450	
Palladium	0.450	
Platinum	0.450	
Ammonia (as N)	599.900	263.700
Total suspended solids	67.500	54.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(b) Raw material granulation.

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals in the granulated raw material	
Copper	0.819	0.390
Cyanide (total)	0.128	0.051
Zinc	0.653	0.269
Gold	0.064	
Palladium	0.064	
Platinum	0.064	
Ammonia (as N)	85.310	37.500
Total suspended solids	9.600	7.680
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Spent plating solutions.

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/liter of spent plating solution used as a raw material	
Copper	1.280	0.610
Cyanide (total)	0.200	0.080
Zinc	1.020	0.420
Gold	0.100	
Palladium	0.100	
Platinum	0.100	
Ammonia (as N)	133.300	58.600
Total suspended solids	15.000	12.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(d) Spent cyanide stripping solutions.

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by cyanide stripping	
Copper	4.736	2.257
Cyanide (total)	0.740	0.296
Zinc	3.774	1.554
Gold	0.370	
Palladium	0.370	
Platinum	0.370	
Ammonia (as N)	493.200	216.800
Total suspended solids	55.500	44.400
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(e) Refinery wet air pollution control.

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, produced in refinery	
Copper	1.280	0.610
Cyanide (total)	0.200	0.080
Zinc	1.020	0.420
Gold	0.100	
Palladium	0.100	
Platinum	0.100	
Ammonia (as N)	133.300	58.600
Total suspended solids	15.000	12.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(f) Gold solvent extraction raffinate and wash water.

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by solvent extraction	
Copper	0.806	0.384
Cyanide (total)	0.126	0.050
Zinc	0.643	0.265

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Gold	0.063	
Palladium	0.063	
Platinum	0.063	
Ammonia (as N)	83.980	36.920
Total suspended solids	9.450	7.560
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(g) Gold spent electrolyte.

NSPS FOR THE SECONDARY PRECIUOS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by electrolysis	
Copper	0.011	0.005
Cyanide (total)	0.002	0.001
Gold	0.001	
Palladium	0.001	
Platinum	0.001	
Zinc	0.009	0.004
Ammonia (as N)	1.160	0.510
Total suspended solids	0.131	0.104
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(h) Gold precipitation and filtration.

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold precipitated	
Copper	5.632	2.684
Cyanide (total)	0.880	0.352
Zinc	4.488	1.848
Gold	0.440	
Palladium	0.440	
Platinum	0.440	
Ammonia (as N)	586.500	257.800
Total suspended solids	66.00	52.800
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(i) Platinum precipitation and filtration.

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of platinum precipitated	
Copper	6.656	3.172
Cyanide (total)	1.040	0.416
Zinc	5.304	2.184
Gold	0.520	
Palladium	0.520	
Platinum	0.520	
Ammonia (as N)	693.200	304.700
Total suspended solids	78.000	62.400
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(j) Palladium precipitation and filtration.

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of palladium precipitated	
Copper	4.480	2.135
Cyanide (total)	0.700	0.280
Zinc	3.570	1.470
Gold	0.350	
Palladium	0.350	
Platinum	0.350	
Ammonia (as N)	466.600	205.100
Total suspended solids	52.500	42.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(k) Other platinum group metals precipitation and filtration.

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of other platinum group metals precipitated	
Copper	6.656	3.172
Cyanide (total)	1.040	0.416
Zinc	5.304	2.184
Gold	0.520	
Palladium	0.520	
Plattinum	0.520	
Ammonia (as N)	693.200	304.700
Total suspended solids	78:000	62.400
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(l) Spent solution from PGC salt production.

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold contained in PGC product	
Copper	1.152	0.549
Cyanide (total)	0.180	0.072
Zinc	0.918	0.378
Gold	0.090	
Palladium	0.090	
Platinum	0.090	
Ammonia (as N)	120.000	52.740
Total suspended solids	13.500	10.800
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(m) Equipment and floor wash.

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, produced in refinery	
Copper	0.000	0.000
Cyanide (total)	0.000	0.000
Zinc	0.000	0.000
Gold	0.000	

NSPS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Palladium	0.000	
Platinum	0.000	
Ammonia (as N)	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.265 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources. The mass of wastewater pollutants in secondary precious metals process wastewater introduced into a POTW must not exceed the following values:

(a) Furnace wet air pollution control.

PSES FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, incinerated or smelted	
Copper	5.760	2.745
Cyanide (total)	0.900	0.360
Zinc	4.590	1.890
Gold	0.450	
Palladium	0.450	
Platinum	0.450	
Ammonia (as N)	599.900	263.700

(b) Raw material granulation.

PSES FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals in the granulated raw material	
Copper	0.819	0.390
Cyanide (total)	0.128	0.051
Zinc	0.653	0.269
Gold	0.064	
Palladium	0.064	
Platinum	0.064	
Ammonia (as N)	85.310	37.500

(c) Spent plating solutions.

PSES FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/liter of spent plating solution used as a raw material	
Copper	1.280	0.610
Cyanide (total)	0.200	0.080
Zinc	1.020	0.420
Gold	0.100	
Palladium	0.100	
Platinum	0.100	
Ammonia (as N)	133.300	58.600

(d) Spent Cyanide stripping solutions.

PSES FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by cyanide stripping	
Copper	4.736	2.257
Cyanide (total)	0.740	0.296
Zinc	3.774	1.554
Gold	0.370	
Palladium	0.370	
Platinum	0.370	
Ammonia (as N)	493.200	216.800

(e) Refinery wet air pollution control.

PSES FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, produced in refinery	
Copper	1.280	0.610
Cyanide (total)	0.200	0.080
Zinc	1.020	0.420
Gold	0.100	
Palladium	0.100	
Platinum	0.100	
Ammonia (as N)	133.300	58.600

(f) Gold solvent extraction raffinate and wash water.

PSES FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by solvent extraction	
Copper	0.806	0.384
Cyanide (total)	0.126	0.050
Zinc	0.643	0.265
Gold	0.063	
Palladium	0.063	
Platinum	0.063	
Ammonia (as N)	83.980	36.920

(g) Gold spent electrolyte.

PSES FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by electrolysis	
Copper	0.011	0.005
Cyanide (total)	0.002	0.001
Zinc	0.009	0.004
Gold	0.001	
Palladium	0.001	
Platinum	0.001	
Ammonia (as N)	1.160	0.510

(h) Gold precipitation and filtration.

PSES FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold precipitated	
Copper	5.632	2.684
Cyanide (total)	0.880	0.352
Zinc	4.488	1.848
Gold	0.440	
Palladium	0.440	
Platinum	0.440	
Ammonia (as N)	586.500	257.800

(i) Platinum precipitation and filtration.

PSES FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of platinum precipitated	
Copper	6.656	3.172
Cyanide (total)	1.040	0.416
Zinc	5.304	2.184
Gold	0.520	
Palladium	0.520	
Platinum	0.520	
Ammonia (as N)	693.200	304.700

(j) Palladium precipitation and filtration.

PSES FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of palladium precipitated	
Copper	4.480	2.135
Cyanide (total)	0.700	0.280
Zinc	3.570	1.470
Gold	0.350	
Palladium	0.350	
Platinum	0.350	
Ammonia (as N)	466.600	205.100

(k) Other platinum group metals precipitation and filtration.

PSES FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of other platinum group metals precipitated	
Copper	6.656	3.172
Cyanide (total)	1.040	0.416
Zinc	5.304	2.184
Gold	0.520	
Palladium	0.520	
Platinum	0.520	
Ammonia (as N)	693.200	304.700

(l) Spent solution from PGC salt production.

PSES FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold contained in PGC product	
Copper	1.152	0.549
Cyanide (total)	0.180	0.072
Zinc	0.918	0.378
Gold	0.090	
Palladium	0.090	
Platinum	0.090	
Ammonia (as N)	120.000	52.740

(m) Equipment and floor wash.

PSES FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, produced in refinery	
Copper	0.000	0.000
Cyanide (total)	0.000	0.000
Zinc	0.000	0.000
Gold	0.000	
Palladium	0.000	
Platinum	0.000	
Ammonia (as N)	0.000	0.000

§ 421.266 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in secondary precious metals process wastewater introduced into a POTW shall not exceed the following values:

(a) Furnace wet air pollution control.

PSNS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, incinerated or smelted	
Copper	5.760	2.745
Cyanide (total)	0.900	0.360
Zinc	4.590	1.890
Gold	0.450	
Palladium	0.450	
Platinum	0.450	
Ammonia (as N)	599.900	263.700

(b) Raw material granulation.

PSNS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, in the granulated raw material	
Copper	0.819	0.390
Cyanide (total)	0.128	0.051
Zinc	0.653	0.269
Gold	0.064	
Palladium	0.064	
Platinum	0.064	
Ammonia	85.310	37.500

(c) Spent plating solutions.

PSNS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/liter of spent plating solution used as a raw materail	
Copper	1.280	0.610
Cyanide (total)	0.200	0.080
Zinc	1.020	0.420
Gold	0.100	
Palladium	0.100	
Platinum	0.100	
Ammonia (as N)	133.300	58.600

(d) Spent cyanide stripping solutions.

PSNS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by cyanide stripping	
Copper	4.736	2.257
Cyanide (total)	0.740	0.296
Zinc	3.774	1.554
Gold	0.370	
Palladium	0.370	
Platinum	0.370	
Ammonia (as N)	493.200	216.800

(e) Refinery wet air pollution control.

PSNS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, produced in refinery	
Copper	1.280	0.610
Cyanide (total)	0.200	0.080
Zinc	1.020	0.420
Gold	0.100	
Palladium	0.100	
Platinum	0.100	
Ammonia (as N)	133.300	58.600

(f) Gold solvent extraction raffinate and wash water.

PSNS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by solvent extraction	
Copper	0.806	0.384
Cyanide (total)	0.126	0.050
Zinc	0.643	0.265
Gold	0.063	
Palladium	0.063	
Platinum	0.063	
Ammonia (as N)	83.980	36.920

(g) Gold spent electrolyte.

PSNS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold produced by electrolysis	
Copper	0.011	0.005
Cyanide (total)	0.002	0.001
Zinc	0.009	0.004
Gold	0.001	
Palladium	0.001	
Platinum	0.001	
Ammonia (as N)	1.160	0.510

(h) Gold precipitation and filtration.

PSNS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold precipitated	
Copper	5.632	2.684
Cyanide (total)	0.880	0.352
Zinc	4.488	1.848
Gold	0.440	
Palladium	0.440	
Platinum	0.440	
Ammonia (as N)	586.500	257.800

(i) Platinum precipitation and filtration.

PSNS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of platinum precipitated	
Copper	6.656	3.172
Cyanide (total)	1.040	0.416
Zinc	5.304	2.184
Gold	0.520	
Palladium	0.520	
Platinum	0.520	
Ammonia (as N)	693.200	304.700

(j) Palladium precipitation and filtration.

PSNS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of platinum precipitated	
Copper	4.480	2.135
Cyanide (total)	0.700	0.280
Zinc	3.570	1.470
Gold	0.350	
Palladium	0.350	
Platinum	0.350	
Ammonia (as N)	466.600	205.100

(k) Other platinum group metals precipitation and filtration.

PSNS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of other platinum group metals precipitated	
Copper	6.656	3.172
Cyanide (total)	1.040	0.416
Zinc	5.304	2.184
Gold	0.520	
Palladium	0.520	
Platinum	0.520	
Ammonia (as N)	693.200	304.700

(l) Spent solution from PGC salt production.

PSNS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of gold contained in PGC product	
Copper	1.152	0.549
Cyanide (total)	0.180	0.072
Zinc	0.918	0.378
Gold	0.090	
Palladium	0.090	
Platinum	0.090	
Ammonia (as N)	120.000	52.740

(m) Equipment and floor wash.

PSNS FOR THE SECONDARY PRECIOUS METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/troy ounce of precious metals, including silver, produced in refinery	
Copper	0.000	0.000
Cyanide (total)	0.000	0.000
Zinc	0.000	0.000
Gold	0.000	
Palladium	0.000	
Platinum	0.000	
Ammonia (as N)	0.000	0.000

§ 421.267 [Reserved].

Subpart Y—Primary Rare Earth Metals Subcategory

§ 421.270 Applicability: description of the primary rare earth metals subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of rare earth metals and mischmetal by primary rare earth metals facilities processing rare earth metal oxides, chlorides, and fluorides.

§ 421.271 Specialized definitions.

In addition to what is provided below: (a) The general definitions, abbreviations, and methods of analysis set forth in 40 CFR 401 shall apply to this subpart. (b) The term "rare earth metals" refers to the elements scandium, yttrium, and lanthanum to lutetium, inclusive. (c) The term "mischmetal" refers to a rare earth metal alloy comprised of the natural mixture of rare earths to about 94–99 percent. The balance of tha alloy includes traces of other elements and one to two percent iron.

§ 421.272 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

(a) Dryer vent water quench and scrubber.

BPT LIMITATIONS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mischmetal produced from wet rare earth chlorides	
Chromium (total)	4.648	1.901
Lead	4.436	2.113
Nickel	20.280	13.420
Total suspended	433.100	206.000
PH solids	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(b) Dryer vent caustic wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds) of mischmetal produced from wet rare earth chlorides	
Chromium (total)	0.323	0.132
Lead	0.308	0.147
Nickel	1.409	0.932
Total suspended solids	30.090	14.310
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Electrolytic cell water quench and scrubber.

BPT LIMITATIONS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds) of mischmetal produced	
Chromium (total)	5.580	2.283
Lead	5.326	2.536
Nickel	24.350	16.110
Total suspended solids	520.000	247.300
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(d) Electrolytic cell caustic wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds) of total mischmetal produced	
Chromium (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Total suspended solids	0.000	0.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(e) Sodium Hypochlorite Filter Backwash.

BPT LIMITATIONS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds) of mischmetal produced	
Chromium (total)	0.159	0.065
Lead	0.152	0.072
Nickel	0.695	0.460
Total suspended solids	14.840	7.059
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.273 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Dryer vent quench and scrubber.

BAT LIMITATIONS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds) of mischmetal produced from wet rare earth chlorides	
Hexachlorobenzene	0.042	0.042
Chromium (total)	1.544	0.626
Lead	1.168	0.542
Nickel	2.295	1.544

(b) Dryer Vent Caustic Wet Air Pollution Control.

BAT LIMITATIONS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per/million pounds) of mischmetal produced from wet rare earth chlorides	
Hexachlorobenzene	0.007	0.007
Chromium (total)	0.272	0.110
Lead	0.206	0.095
Nickel	0.404	0.272

(c) Electrolytic Cell Water Quench and Scrubber.

BAT LIMITATIONS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of total misch-metal produced	
Hexachlorobenzene	0.094	0.094
Chromium (total)	3.474	1.409
Lead	2.629	1.221
Nickel	5.165	3.474

(d) Electrolytic Cell Caustic Wet Air Pollution Control.

BAT LIMITATIONS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of total misch-metal produced	
Hexachlorobenzene	0.000	0.000
Chromium (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Nickel	0.000	0.000

(e) Sodium Hypochlorite Filter Backwash.

BAT LIMITATIONS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of total misch-metal produced	
Hexachlorobenzene	0.004	0.004
Chromium (total)	0.134	0.054
Lead	0.101	0.047
Nickel	0.199	0.134

§ 421.274 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Dryer Vent Water Quench and Scrubber.

NSPS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mischmetal produced from wet rare earth chlorides	
Hexachlorobenzene	0.042	0.042
Chromium (total)	1.544	0.626
Lead	1.168	0.542
Nickel	2.295	1.544
Total suspended solids	62.600	50.080
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(b) Dryer vent caustic wet air pollution control.

NSPS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mischmetal produced from wet rare earth chlorides	
Hexachlorobenzene	0.007	0.007
Chromium (total)	0.272	0.110
Lead	0.206	0.095
Nickel	0.404	0.272
Total suspended solids	11.010	8.808
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(c) Electrolytic cell water quench and scrubber.

NSPS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of total misch-metal produced	
Hexachlorobenzene	0.094	0.094
Chromium (total)	3.474	1.409
Lead	2.629	1.221
Nickel	5.165	3.474
Total suspended solids	140.900	112.700
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(d) Electrolytic cell caustic wet air pollution control.

NSPS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of total misch-metal produced	
Hexachlorobenzene	0.000	0.000
Chromium (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(e) Sodium hypochlorite filter backwash.

NSPS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of total misch-metal produced	
Hexachlorobenzene	0.004	0.004
Chromium (total)	0.134	0.054
Lead	0.101	0.047
Nickel	0.199	0.134

NSPS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Total suspended solids	5.430	4.334
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

§ 421.275 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources. The mass of wastewater pollutants in primary rare earth metals process wastewater introduced into a POTW must not exceed the following values:

(a) Dryer vent water quench scrubber.

PSES FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mischmetal produced from wet rare earth chlorides	
Hexachlorobenzene	0.042	0.042
Chromium (total)	1.544	0.626
Lead	1.168	0.542
Nickel	2.295	1.544

(b) Dryer Vent Caustic Wet Air Pollution Control.

PSES FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mischmetal produced from wet rare earth chlorides	
Hexachlorobenzene	0.007	0.007
Chromium (total)	0.272	0.110
Lead	0.206	0.095
Nickel	0.404	0.272

(c) Electrolytic cell water quench and scrubber.

PSES FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of total mischmetal produced	
Hexachlorobenzene	0.094	0.094
Chromium (total)	3.474	1.409

PSES FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Lead	2.629	1.221
Nickel	5.165	3.474

(d) Electrolytic cell caustic wet air pollution control.

PSES FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of total mischmetal produced	
Hexachlorobenzene	0.000	0.000
Chromium (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000

(e) Sodium hypochlorite filter backwash.

PSES FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of total mischmetal produced	
Hexachlorobenzene	0.004	0.004
Chromium (total)	0.134	0.054
Lead	0.101	0.047
Nickel	0.199	0.134

§ 421.276 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in primary rare earth metals process wastewater introduced into a POTW shall not exceed the following values:

(a) Dryer vent water quench and scrubber.

PSNS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mischmetal produced from wet rare earth chlorides	
Hexachlorobenzene	0.042	0.042
Chromium (total)	1.544	0.626
Lead	1.168	0.542

PSNS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Nickel	2.295	1.544

(b) Dryer vent caustic wet air pollution control.

PSNS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of mischmetal produced from wet rare earth chlorides	
Hexachlorobenzene	0.007	0.007
Chromium (total)	0.272	0.110
Lead	0.206	0.095
Nickel	0.404	0.272

(c) Electrolytic cell water quench and scrubber.

PSNS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of total mischmetal produced	
Hexachlorobenzene	0.094	0.094
Chromium (total)	3.474	1.409
Lead	2.629	1.221
Nickel	5.165	3.474

(d) Electrolytic cell caustic wet air pollution control.

PSNS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of total mischmetal produced	
Hexachlorobenzene	0.000	0.000
Chromium (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000

(e) Sodium hypochlorite filter backwash.

PSNS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of total mischmetal produced	
Hexachlorobenzene	0.004	0.004
Chromium (total)	0.134	0.054

PSNS FOR THE PRIMARY RARE EARTH METALS SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Lead	0.101	0.047
Nickel	0.199	0.134

§ 421.277 [Reserved].

Subpart Z—Secondary Tantalum Subcategory

§ 421.280 Applicability: description of the secondary Tantalum subcategory

The provisions of this subpart are applicable to discharges resulting from the production of tantalum at secondary tantalum facilities.

§ 421.281 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR 401 shall apply to this subpart.

§ 421.282 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

(a) Tantalum alloy leach and rinse.

BPT LIMITATIONS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tantalum powder produced	
Copper	438.100	230.600
Lead	96.850	46.120
Nickel	442.600	292.900
Zinc	336.700	140.700
Tantalum	103.800	
Total suspended solids	9,455.000	4,497.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(b) Capacitor leach and rinse.

BPT LIMITATIONS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tantalum powder produced from leaching	
Copper	38.380	20.200
Lead	8.484	4.040
Nickel	38.780	25.650
Zinc	29.490	12.320
Tantalum	9.090	
Total suspended solids	828.200	393.900
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(c) Tantalum sludge leach and rinse.

BPT LIMITATIONS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of equivalent pure tantalum powder produced	
Copper	390.100	205.300
Lead	86.230	41.060
Nickel	394.200	260.700
Zinc	299.700	125.200
Tantalum	92.390	
Total suspended solids	8,417.000	4,003.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(d) Tantalum powder acid wash and rinse.

BPT LIMITATIONS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tantalum powder produced	
Copper	0.665	0.350
Lead	0.147	0.070
Nickel	0.672	0.445
Zinc	0.511	0.214
Tantalum	0.158	
Total suspended solids	14.350	6.825
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(e) Leaching wet air pollution control.

BPT LIMITATIONS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of equivalent pure tantalum powder produced	
Copper	9.272	4.880
Lead	2.050	0.976
Nickel	9.370	6.198
Zinc	7.125	2.977
Tantalum	2.196	
Total suspended solids	200.100	95.160
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.283 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Tantalum alloy leach and rinse.

BAT LIMITATIONS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tantalum powder produced	
Copper	295.200	140.700
Lead	64.570	29.980
Nickel	128.800	85.320
Zinc	235.200	96.850
Tantalum	103.800	

(b) Capacitor leach and rinse.

BAT LIMITATIONS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tantalum powder produced from leaching	
Copper	25.860	12.320
Lead	5.656	2.626
Nickel	11.110	7.474
Zinc	20.600	8.484
Tantalum	9.090	

(c) Tantalum sludge leach and rinse.

BAT LIMITATIONS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of equivalent pure tantalum powder produced	
Copper	262.800	125.200
Lead	57.480	26.690
Nickel	112.900	75.960
Zinc	209.400	86.230
Tantalum	92.390	

(d) Tantalum powder acid wash and rinse.

BAT LIMITATIONS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tantalum powder produced	
Copper	0.448	0.214
Lead	0.098	0.046
Nickel	0.193	0.130
Zinc	0.357	0.147
Tantalum	0.158	

(e) Leaching wet air pollution control.

BAT LIMITATIONS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of equivalent pure tantalum powder produced	
Copper	6.246	2.977
Lead	1.366	0.634
Nickel	2.684	1.806
Zinc	4.978	2.050
Tantalum	2.196	

§ 421.284 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Tantalum alloy leach and rinse.

NSPS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tantalum powder produced	
Copper	295.200	140.700
Lead	64.570	29.980
Nickel	126.800	85.320
Zinc	235.200	96.850
Tantalum	103.800	
Total suspended solids	3,459.000	2,767.000
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(b) Capacitor leach and rinse.

NSPS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tantalum powder produced from leaching	
Copper	25.860	12.320
Lead	5.656	2.626
Nickel	11.110	7.474
Zinc	20.600	8.484
Tantalum	9.090	
Total suspended solids	303.000	242.400

NSPS FOR THE SECONDARY TANTALUM SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(c) Tantalum sludge leach and rinse.

NSPS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of equivalent pure tantalum powder produced	
Copper	262.800	125.200
Lead	57.480	26.690
Nickel	112.900	75.960
Zinc	209.400	86.230
Tantalum	92.390	
Total suspended solids	3,080.000	2,464.000
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(d) Tantalum powder acid wash and rinse.

NSPS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tantalum powder produced	
Copper	0.448	0.214
Lead	0.098	0.046
Nickel	0.193	0.130
Zinc	0.357	0.147
Tantalum	0.158	
Total suspended solids	5.250	4.200
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(e) Leaching wet air pollution control.

NSPS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of equivalent pure tantalum powder produced	
Copper	6.246	2.977
Lead	1.366	0.634
Nickel	2.684	1.806
Zinc	4.978	2.050
Tantalum	2.196	
Total suspended solids	73.200	58.560
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

§ 421.285 [Reserved]

§ 421.286 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in secondary tantalum process wastewater introduced into a POTW shall not exceed the following values:

(a) Tantalum alloy leach and rinse.

PSNS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tantalum powder produced	
Copper	295.200	140.700
Lead	64.570	29.980
Nickel	126.800	85.320
Zinc	235.200	96.850
Tantalum	103.800	

(b) Capacitor leach and rinse.

PSNS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tantalum powder produced from leaching	
Copper	25.860	12.320
Lead	5.656	2.626
Nickel	11.110	7.474
Zinc	20.600	8.484
Tantalum	9.090	

(c) Tantalum sludge leach and rinse.

PSNS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of equivalent pure tantalum powder produced	
Copper	262.800	125.200
Lead	57.480	26.690
Nickel	112.900	75.960
Zinc	209.400	86.230
Tantalum	92.390	

(d) Tantalum powder acid wash and rinse.

PSNS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tantalum powder produced	
Copper	0.448	0.214
Lead	0.098	0.046
Nickel	0.193	0.130
Zinc	0.357	0.147
Tantalum	0.158	

(e) Leaching wet air pollution control.

PSNS FOR THE SECONDARY TANTALUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of equivalent pure tantalum powder produced	
Copper	6.246	2.977
Lead	1.366	0.634
Nickel	2.684	1.806
Zinc	4.978	2.050
Tantalum	2.196	

§ 421.287 [Reserved]

Subpart AA—Secondary Tin Subcategory

§ 421.290 Applicability: Description of the secondary tin subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of tin at secondary tin facilities utilizing either pyrometallurgical or hydrometallurgical processes to recover tin from secondary materials.

§ 421.291 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR Part 401 shall apply to this subpart.

§ 421.292 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

(a) Tin smelter SO_2 scrubber.

BPT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of crude tapped tin metal produced	
Arsenic	19.220	8.554
Lead	3.863	1.840
Iron	11.040	5.611
Tin	3.495	2.024
Total suspended solids	377.100	179.400
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(b) Dealuminizing rinse.

BPT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of dealuminized scrap produced	
Lead	0.015	0.007
Cyanide (total)	0.010	0.004
Fluoride	1.225	0.700
Tin	0.013	0.008
Total suspended solids	1.435	0.683
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Tin mud acid neutralization filtrate.

BPT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Minimum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of neutralized, dewatered tin mud produced	
Lead	2.120	1.009
Cyanide (total)	1.464	0.606
Fluoride	176.600	100.400
Tin	1.918	1.110
Total suspended solids	206.900	98.420
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(d) Tin hydroxide wash.

BPT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Minimum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin hydroxide washed	
Lead	5.020	2.391
Cyanide (total)	3.466	1.434
Fluoride	418.400	237.900
Tin	4.542	2.630
Total suspended solids	490.100	233.100
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(e) Spent electrowinning solution from new scrap.

BPT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Minimum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cathode tin produced	
Lead	7.056	3.360
Cyanide (total)	4.872	2.016
Fluoride	588.000	334.300
Tin	6.384	3.696
Total suspended solids	688.800	327.600
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(f) Spent electrowinning solution from municipal solid waste.

BPT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Minimum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of MSW scrap used as raw material	
Lead	0.050	0.024
Cyanide (total)	0.035	0.014
Fluoride	4.165	2.368
Tin	0.045	0.026
Total suspended solids	4.879	2.321
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(g) Tin hydroxide supernatant from scrap.

BPT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal recovered from scrap	
Lead	23.370	11.130
Cyanide (total)	16.140	6.677
Fluoride	1,947.000	1,107.000
Tin	21.140	12.240
Total suspended solids	2,281.000	1,085.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(h) Tin hydroxide supernatant from plating solutions and sludges.

BPT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal recovered from plating solutions and sludges	
Lead	48.30	23.00
Cyanide (total)	33.35	13.80
Fluoride	4,025.00	2,289.00
Tin	43.70	25.30
Total suspended solids	4,715.00	2,243.00
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(i) Tin hydroxide filtrate.

BPT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal produced	
Lead	10.520	5.009
Cyanide (total)	7.263	3.005
Fluoride	876.500	498.400
Tin	9.517	5.510
Total suspended solids	1,027.000	488.400
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

§ 421.293 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Tin smelter SO_2 scrubber.

BAT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of crude tapped tin produced	
Arsenic	12.790	5.703
Lead	2.575	1.196
Iron	11.040	5.611
Tin	3.495	2.024

(b) Dealuminizing rinse.

BAT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of dealuminized scrap produced	
Lead	0.010	0.005
Cyanide (total)	0.007	0.003
Fluoride	1.225	0.697
Tin	0.013	0.008

(c) Tin mud acid neutralization filtrate.

BAT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of neutralized dewatered tin mud produced	
Lead	1.413	0.656
Cyanide (total)	1.009	0.404
Fluoride	176.600	100.400
Tin	1.918	1.110

(d) Tin hydroxide wash.

BAT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin hydroxide washed	
Lead	3.347	1.554
Cyanide (total)	2.391	0.956
Fluoride	418.400	237.900
Tin	4.542	2.630

(e) Spent electrowinning solution from new scrap.

BAT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cathode tin produced	
Lead	4.704	2.184
Cyanide (total)	3.360	1.344
Fluoride	588.000	334.300
Tin	6.384	3.696

(f) Spent electrowinning solution from municipal solid waste.

BAT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of MSW scrap used as raw material	
Lead	0.033	0.015
Cyanide (total)	0.024	0.010
Fluoride	4.165	2.368
Tin	0.045	0.026

(g) Tin hydroxide supernatant from scrap.

BAT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal recovered from scrap	
Lead	15.580	7.233
Cyanide (total)	11.130	4.451
Fluoride	1,947.000	1,107.000
Tin	21.140	21.240

(h) Tin hydroxide supernatant from plating solutions and sludges.

BAT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal recovered from plating solutions and sludges	
Lead	32.20	14.95
Cyanide (total)	23.00	9.20
Fluoride	4,025.00	2,289.00
Tin	43.70	25.30

(i) Tin hydroxide filtrate.

BAT LIMITATIONS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal produced	
Lead	7.012	3.256
Cyanide (total)	5.009	2.004
Fluoride	876.500	498.400
Tin	9.517	5.510

§ 421.294 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Tin smelter SO_2 scrubber.

NSPS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of crude tapped tin produced	
Arsenic	12.790	5.703
Lead	2.575	1.196
Iron	11.040	5.611
Tin	3.495	2.024
Total suspended solids	138.000	110.400
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(b) Dealuminizing rinse

NSPS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of dealuminized scrap produced	
Lead	0.010	0.005
Cyanide (total)	0.007	0.003
Fluoride	1.225	0.697
Tin	0.013	0.008
Total suspended solids	0.525	0.420
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Tin mud acid neutralization filtrate.

NSPS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of neutralized dewatered tin mud produced	
Lead	1.413	0.656
Cyanide (total)	1.009	0.404
Fluoride	176.600	100.400
Tin	1.918	1.110
Total suspended solids	75.710	60.560
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(d) Tin hydroxide wash.

NSPS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin hydroxide washed	
Lead	3.347	1.554
Cyanide (total)	2.391	0.956
Fluoride	418.400	237.900
Tin	4.542	2.630
Total suspended solids	179.300	143.400
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(e) Spent electrowinning solution from new scrap.

NSPS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cathode tin produced	
Lead	4.704	2.184
Cyanide (total)	3.360	1.344
Fluoride	588.000	334.300
Tin	6.384	3.696
Total suspended solids	252.000	201.600
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(f) Spent electrowinning solution from municipal solid waste.

NSPS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of MSW scrap used as raw material	
Lead	0.033	0.015
Cyanide (total)	0.024	0.010
Fluoride	4.165	2.368
Tin	0.045	0.026
Total suspended solids	1.785	1.428
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(g) Tin hydroxide supernatant from scrap.

NSPS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal recovered from scrap	
Lead	15.580	7.233
Cyanide (total)	11.130	4.451
Fluoride	1,947.000	1,107.000
Tin	21.140	12.240
Total suspended solids	834.600	667.700
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(h) Tin hydroxide supernatant from plating solutions and sludges.

NSPS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal recovered from plating solutions and sludges	
Lead	32.20	14.95
Cyanide (total)	23.00	9.20
Fluoride	4,025.00	2,289.00
Tin	43.70	25.30
Total suspended solids	1,725.00	1,380.00
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(i) Tin hydroxide filtrate.

NSPS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal produced	
Lead	7.012	3.256
Cyanide (total)	5.009	2.004
Fluoride	876.500	498.400
Tin	9.517	5.510
Total suspended solids	375.700	300.500
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

§ 421.295 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources. The mass of wastewater pollutants in secondary tin process wastewater introduced into a POTW must not exceed the following values:

(a) Tin smelter SO_2 scrubber.

PSES FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of crude tapped tin produced	
Arsenic	12.790	5.703
Lead	2.575	1.196
Iron	11.040	5.611
Tin	3.495	2.024

(b) Dealuminizing rinse.

PSES FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of dealuminized scrap produced	
Lead	0.010	0.005
Cyanide (total)	0.007	0.003
Fluoride	1.225	0.697
Tin	0.013	0.008

(c) Tin mud acid neutralization filtrate.

PSES FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of neutralized dewatered tin mud produced	
Lead	1.413	0.656
Cyanide (total)	1.009	0.404
Fluoride	176.600	100.400
Tin	1.918	1.110

(d) Tin hydroxide wash.

PSES FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin hydroxide washed	
Lead	3.347	1.554
Cyanide (total)	2.391	0.956
Fluoride	418.400	237.900
Tin	4.542	2.630

(e) Spent electrowinning solution from new scrap.

PSES FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cathode tin produced	
Lead	4.704	2.184
Cyanide (total)	3.360	1.344
Fluoride	588.000	334.300
Tin	6.384	3.696

(f) Spent electrowinning solution from municipal solid waste.

PSES FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of MSW scrap used as raw material	
Lead	0.033	0.015
Cyanide (total)	0.024	0.010
Fluoride	4.165	2.368
Tin	0.045	0.026

(g) Tin hydroxide supernatant from scrap.

PSES FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal recovered from scrap	
Lead	15.580	7.233
Cyanide (total)	11.130	4.451
Fluoride	1,947.000	1,107.000
Tin	21.140	12.240

(h) Tin hydroxide supernatant from plating solutions and sludges.

PSES FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal recovered from plating solutions and sludges	
Lead	32.20	14.95
Cyanide (total)	23.00	9.20
Fluoride	4,025.00	2,289.00
Tin	43.70	25.30

(i) Tin hydroxide filtrate.

PSES FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal produced	
Lead	7.012	3.256
Cyanide (total)	5.009	2.004
Fluoride	876.500	498.400
Tin	9.517	5.510

§ 421.296 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in secondary tin process wastewater introduced into a POTW shall not exceed the following values:

(a) Tin smelter SO_2 scrubber.

PSNS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of crude tapped tin produced	
Arsenic	12.790	5.703
Lead	2.575	1.196
Iron	11.040	5.611
Tin	3.495	2.024

(b) Dealuminizing Rinse.

PSNS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of dealuminized scrap produced	
Lead	0.010	0.005
Cyanide (total)	0.007	0.003
Fluoride	1.225	0.697
Tin	0.013	0.008

(c) Tin mud acid neutralization filtrate.

PSNS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million of pounds) of neutralized dewatered tin mud produced	
Lead	1.413	0.656
Cyanide (total)	1.009	0.404
Fluoride	176.600	100.400
Tin	1.918	1.110

(d) Tin hydroxide wash.

PSNS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin hydroxide washed	
Lead	3.347	1.554
Cyanide (total)	2.391	0.956
Fluoride	418.400	237.900
Tin	4.542	2.630

(e) Spent electrowinning solution from new scrap.

PSNS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cathode tin produced	
Lead	4.704	2.184
Cyanide (total)	3.360	1.344
Fluoride	588.000	334.300
Tin	6.384	3.696

(f) Spent electrowinning solution from municipal solid waste.

PSNS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of MSW scrap used as raw material	
Lead	0.033	0.015
Cyanide (total)	0.024	0.010
Fluoride	4.165	2.368
Tin	0.045	0.026

(g) Tin hydroxide supernatant from scrap.

PSNS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal recovered from scrap	
Lead	15.580	7.233
Cyanide (total)	11.130	4.451
Fluoride	1,947.000	1,107.000
Tin	21.140	12.240

(h) Tin hydroxide supernatant from plating solutions and ludges.

PSNS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal recovered from plating solutions and sludges	
Lead	32.20	14.95
Cyanide (total)	23.00	9.20

PSNS FOR THE SECONDARY TIN SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Fluoride	4,025.00	2,289.00
Tin	43.70	25.30

(i) Tin hydroxide filtrate.

PSNS FOR THE SECONDARY TIN SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tin metal produced	
Lead	7.012	3.256
Cyanide (total)	5.009	2.004
Fluoride	876.500	498.400
Tin	9.517	5.510

§ 421.297 [Reserved]

Subpart AB—Primary and Secondary Titanium Subcategory

§ 421.300 Applicability: Description of the primary and secondary titanium subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of titanium at primary and secondary titanium facilities. Facilities which only practice vacuum distillation for sponge purification and which do not practice electrolytic recovery of magnesium are exempt from regulations. All other primary and secondary titanium facilities are covered by these regulations.

§ 421.301 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR Part 401 shall apply to this subpart.

§ 421.302 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

(a) Chlorination off-gas wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ produced	
Chromium (total)	0.412	0.168
Lead	0.393	0.187
Nickel	1.797	1.189
Titanium	0.880	0.384
Oil and Grease	18.720	11.230
Total suspended solids	38.380	18.250
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(b) Chlorination area-vent wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ produced	
Chromium (total)	0.412	0.168
Chromium (total)	0.458	0.187
Lead	0.437	0.208
Nickel	1.997	1.321
Titanium	0.978	0.426
Oil and Grease	20.800	12.480
Total suspended solids	42.640	20.280
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(c) $TiCl_4$ handling wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ handled	
Chromium (total)	0.082	0.034
Lead	0.079	0.037
Nickel	0.359	0.237
Titanium	0.176	0.077
Oil and Grease	3.740	2.244
Total suspended solids	7.667	3.647
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(d) Reduction area wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	18.170	7.435
Lead	17.350	8.261
Nickel	79.300	52.450
Titanium	38.820	16.930
Oil and Grease	826.100	495.600
Total suspended solids	1,693.000	805.400
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(e) Melt cell wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	9.352	3.826
Lead	8.927	4.251
Nickel	40.810	26.990
Titanium	19.980	8.714
Oil and Grease	425.100	255.000
Total suspended solids	871.400	414.500
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(f) Chlorine liquefaction wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	130.900	53.560
Lead	125.000	59.510
Nickel	571.300	377.900
Titanium	279.700	122.000
Oil and Grease	5,951.000	3,571.000
Total suspended solids	12,200.000	5,702.000
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(g) Sodium reduction container reconditioning wash water.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.564	0.231
Lead	0.538	0.256
Nickel	2.461	1.628
Titanium	1.205	0.526
Oil and Grease	25.640	15.380
Total suspended solids	52.560	25.000
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(h) Chip crushing wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	10.090	4.126
Lead	9.627	4.584
Nickel	44.010	29.110
Titanium	21.550	9.398

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Oil and Grease	458.400	275.100
Total suspended solids	939.800	447.000
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(i) Acid leachate and rinse water.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	5.210	2.131
Lead	4.973	2.368
Nickel	22.730	15.040
Titanium	11.130	4.854
Oil and Grease	236.800	142.100
Total suspended solids	485.400	230.900
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(j) Sponge crushing and screening wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	2.847	1.165
Lead	2.717	1.294
Nickel	12.420	8.217
Titanium	6.082	2.653
Oil and Grease	129.400	77.640
Total suspended solids	265.300	126.200
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(k) Acid pickle and wash water.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium pickled	
Chromium (total)	0.027	0.011
Lead	0.026	0.012
Nickel	0.117	0.077
Titanium	0.057	0.025
Oil and Grease	1.220	0.732
Total suspended solids	2.501	1.190
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(l) Scrap milling wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of scrap milled	
Chromium (total)	0.995	0.407
Lead	0.950	0.452
Nickel	4.341	2.871
Titanium	2.125	0.927
Oil and Grease	45.220	27.130
Total suspended solids	92.700	44.090
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(m) Scrap detergent wash water.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of scrap washed	
Chromium (total)	7.948	3.252
Lead	7.587	3.613
Nickel	34.680	22.940
Titanium	16.980	7.406
Oil and Grease	361.300	216.800
Total suspended solids	740.600	352.300
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(n) Casting crucible wash water.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium cast	
Chromium (total)	0.210	0.086
Lead	0.200	0.095
Nickel	0.916	0.606
Titanium	0.448	0.196
Oil and Grease	9.540	5.724
Total suspended solids	19.560	9.302
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

(o) Casting contact cooling water.

BPT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium cast	
Chromium (total)	321.100	131.400
Lead	306.500	145.900
Nickel	1,401.000	926.800
Titanium	685.900	299.200
Oil and Grease	14,590.000	8,757.000
Total suspended solids	29,920.000	14,230.000
pH	(1)	(1)

1 Within the range of 7.5 to 10.0 at all times.

§ 421.303 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Chlorination off-gas wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ produced	
Chromium (total)	0.346	0.140
Lead	0.262	0.122
Nickel	0.515	0.346
Titanium	0.496	0.215

(b) Chlorination area-vent wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ produced	
Chromium (total)	0.385	0.156
Lead	0.291	0.135
Nickel	0.572	0.385
Titanium	0.551	0.239

(c) $TiCl_4$ handling wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ handled	
Chromium (total)	0.069	0.028
Lead	0.052	0.024
Nickel	0.103	0.069
Titanium	0.099	0.043

(d) Reduction area wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	1.528	0.620
Lead	1.156	0.537
Nickel	2.272	1.528
Titanium	2.189	0.950

(e) Melt cell wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.787	0.319
Lead	0.595	0.276
Nickel	1.169	0.787
Titanium	1.127	0.489

(f) Chlorine liquefaction wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	11.010	4.463
Lead	6.332	3.868
Nickel	16.370	11.010
Titanium	15.770	6.844

(g) Sodium reduction container reconditioning wash water.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.474	0.192
Lead	0.359	0.167
Nickel	0.705	0.474
Titanium	0.679	0.295

(h) Chip crushing wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.848	0.344
Lead	0.642	0.298
Nickel	1.261	0.848
Titanium	1.215	0.527

(i) Acid leachate and rinse water.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	4.381	1.776
Lead	3.315	1.539
Nickel	6.512	4.381
Titanium	6.275	2.723

(j) Sponge crushing and screening wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.239	0.097
Lead	0.181	0.084
Nickel	0.356	0.239
Titanium	0.343	0.149

(k) Acid pickle and wash water.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium pickled	
Chromium (total)	0.023	0.009
Lead	0.017	0.008
Nickel	0.034	0.023
Titanium	0.032	0.014

(l) Scrap milling wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of scrap milled	
Chromium (total)	0.084	0.034
Lead	0.064	0.030
Nickel	0.125	0.084
Titanium	0.120	0.052

(m) Scrap detergent wash water.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of scrap washed	
Chromium (total)	6.684	2.710
Lead	5.058	2.348
Nickel	9.935	6.684
Titanium	9.574	4.155

(n) Casting crucible wash water.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium cast	
Chromium (total)	0.176	0.072
Lead	0.134	0.062
Nickel	0.262	0.176
Titanium	0.253	0.110

(o) Casting contact cooling water.

BAT LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium cast	
Chromium (total)	27.000	10.950
Lead	20.430	9.486
Nickel	40.140	27.000
Titanium	38.68	16.78

§ 421.304 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Chlorination off-gas wet air pollution control.

NSPS LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ produced	
Chromium (total)	0.346	0.140
Lead	0.262	0.122
Nickel	0.515	0.346
Titanium	0.496	0.215
Oil and Grease	9.360	9.360
Total suspended solids	14.040	11.230
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(b) Chlorination area-vent wet air pollution control.

NSPS LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ produced	
Chromium (total)	0.385	0.156
Lead	0.291	0.135
Nickel	0.572	0.385
Titanium	0.551	0.239
Oil and Grease	10.400	10.400
Total suspended solids	15.600	12.480
pH	(¹)	(¹)

¹ Within the range of 7.0 to 10.0 at all times.

(c) $TiCl_4$ handling wet air pollution control.

NSPS LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ handled	
Chromium (total)	0.069	0.028
Lead	0.052	0.024
Nickel	0.103	0.069
Titanium	0.099	0.043
Oil and Grease	1.870	1.870
Total suspended solids	2.805	2.244
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(d) Reduction area wet air pollution control.

NSPS LIMITATIONS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	1.528	0.620
Lead	1.156	0.537
Nickel	2.272	1.528
Titanium	2.189	0.950
Oil and Grease	41.300	41.300
Total suspended solids	61.950	49.560
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(e) Melt cell wet air pollution control.

NSPS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.787	0.319
Lead	0.595	0.276
Nickel	1.169	0.787
Titanium	1.127	0.489
Oil and Grease	21.260	21.260
Total suspended solids	31.890	25.510
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(f) Chlorine liquefaction wet air pollution control.

NSPS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pound per million pounds) of titanium produced	
Chromium (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Titanium	0.000	0.000
Oil and Grease	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(g) Sodium reduction container reconditioning wash.

NSPS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pound per million pounds) of titanium produced	
Chromium (total)	0.474	0.192
Lead	0.359	0.167
Nickel	0.705	0.474
Titanium	0.679	0.295
Oil and Grease	12.820	12.820
Total suspended solids	19.230	15.380
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(h) Chip Crushing wet air pollution control.

NSPS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pound per million pounds) of titanium produced	
Chromium (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Titanium	0.000	0.000
Oil and Grease	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(i) Acid leachate and rinse water.

NSPS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pound per million pounds) of titanium produced	
Chromium (total)	4.381	1.776
Lead	3.315	1.539
Nickel	6.512	4.381
Titanium	6.275	2.723
Oil and Grease	118.400	118.400
Total suspended solids	177.600	142.100
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(j) Sponge crushing and screening wet air pollution control.

NSPS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Titanium	0.000	0.000
Oil and Grease	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(k) Acid pickle and wash water.

NSPS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium pickled	
Chromium (total)	0.023	0.009
Lead	0.017	0.008
Nickel	0.034	0.023
Titanium	0.032	0.014
Oil and Grease	0.610	0.610
Total suspended solids	0.915	0.732
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(l) Scrap milling wet air pollution control.

NSPS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of scrap milled	
Chromium (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Titanium	0.000	0.000
Oil and Grease	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times

(m) Scrap detergent wash water.

NSPS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of scrap washed	
Chromium (total)	6.684	2.710
Lead	5.058	2.348
Nickel	9.935	6.684
Titanium	9.574	4.155
Oil and Grease	180.600	180.600
Total suspended solids	271.000	216.000
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times

(n) Casting crucible wash water.

NSPS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium cast	
Chromium (total)	0.176	0.072
Lead	0.134	0.062
Nickel	0.262	0.176
Titanium	0.253	0.110
Oil and Grease	4.770	4.770
Total suspended solids	7.155	5.724
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

(o) Casting contact cooling water.

NSPS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium cast	
Chromium (total)	27.000	10.950
Lead	20.430	9.486
Nickel	40.140	27.000
Titanium	38.680	16.780
Oil and Grease	729.700	729.700
Total suspended solids	1,095.000	875.700
pH	(¹)	(¹)

¹Within the range of 7.5 to 10.0 at all times.

§ 421.305 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7 and 403.13, any existing source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources. The mass of wastewater pollutants in primary and secondary titanium process wastewater introduced into a POTW must not exceed the following values:

(a) Chlorination off-gas wet air pollution control.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ produced	
Chromium (total)	0.346	0.140
Lead	0.262	0.122
Nickel	0.515	0.346
Titanium	0.496	0.215

(b) Chlorination Area-vent wet air pollution control.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ produced	
Chromium (total)	0.385	0.156
Lead	0.291	0.135
Nickel	0.572	0.385
Titanium	0.551	0.239

(c) $TiCl_4$ handling wet air pollution control.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ handled	
Chromium (total)	0.069	0.028
Lead	0.052	0.024
Nickel	0.103	0.069
Titanium	0.099	0.043

(d) Reduction area wet air pollution control.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	1.528	0.620
Lead	1.156	0.537
Nickel	2.272	1.526
Titanium	2.189	0.950

(e) Melt cell wet air pollution control.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.787	0.319
Lead	0.595	0.276
Nickel	1.169	0.787
Titanium	1.127	0.489

(f) Chlorine liquefaction wet air pollution control.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	11.010	4.463
Lead	8.332	3.868
Nickel	16.370	11.010
Titanium	15.770	6.844

(g) Sodium reduction container reconditioning wash water.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.474	0.192
Lead	0.359	0.167
Nickel	0.705	0.474
Titanium	0.679	0.295

(h) Chip crushing wet air pollution control.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.848	0.344
Lead	0.642	0.298
Nickel	1.261	0.848
Titanium	1.215	0.527

(i) Acid leachate and rinse water.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	4.381	1.776
Lead	3.315	1.539
Nickel	6.512	4.381
Titanium	6.275	2.723

(j) Sponge crushing and screening wet air pollution control.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.239	0.097
Lead	0.181	0.084
Nickel	0.356	0.239
Titanium	0.343	0.149

(k) Acid pickle and wash water.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium pickled	
Chromium (total)	0.023	0.009
Lead	0.017	0.008
Nickel	0.034	0.023
Titanium	0.032	0.014

(l) Scrap milling wet air pollution control.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of scrap milled	
Chromium (total)	0.084	0.034
Lead	0.064	0.030
Nickel	0.125	0.084
Titanium	0.120	0.052

(m) Scrap detergent wash water.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of scrap washed	
Chromium (total)	6.684	2.710
Lead	5.058	2.348
Nickel	9.935	6.684
Titanium	9.574	4.155

(n) Casting crucible wash water.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium cast	
Chromium (total)	0.176	0.072
Lead	0.134	0.062
Nickel	0.262	0.176
Titanium	0.253	0.110

(o) Casting contact cooling water.

PSES FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium cast	
Chromium (total)	27.000	10.950
Lead	20.430	9.486
Nickel	40.140	27.000
Titanium	38.680	16.780

§ 421.306 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in primary and secondary titanium process wastewater introduced into a POTW shall not exceed the following values:

(a) Chlorination off-gas wet air pollution control.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ produced	
Chromium (total)	0.346	0.140
Lead	0.262	0.122
Nickel	0.515	0.346
Titanium	0.496	0.215

(b) Chlorination area-vent wet air pollution control.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ produced	
Chromium (total)	0.385	0.156
Lead	0.291	0.135
Nickel	0.572	0.385
Titanium	0.551	0.239

(c) $TiCl_4$ handling wet air pollution control.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of $TiCl_4$ handled	
Chromium (total)	0.069	0.028
Lead	0.052	0.024
Nickel	0.103	0.069
Titanium	0.099	0.043

(d) Reduction area wet air pollution control.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	1.528	0.620
Lead	1.156	0.537
Nickel	2.272	1.528
Titanium	2.189	0.950

(e) Melt cell wet air pollution control.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.787	0.319
Lead	0.595	0.276
Nickel	1.169	0.787
Titanium	1.127	0.489

(f) Chlorine liquefaction wet air pollution control.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Titanium	0.000	0.000

(g) Sodium reduction container reconditioning wash water.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.474	0.192
Lead	0.359	0.167
Nickel	0.705	0.474
Titanium	0.679	0.295

(h) Chip crushing wet air pollution control.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Titanium	0.000	0.000

(i) Acid leachate and rinse water.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	4.381	1.776
Lead	3.315	1.539
Nickel	6.512	4.381
Titanium	6.275	2.723

(j) Sponge crushing and screening wet air pollution control.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium produced	
Chromium (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Titanium	0.000	0.000

(k) Acid pickle and wash water.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium pickled	
Chromium (total)	0.023	0.009
Lead	0.017	0.008
Nickel	0.034	0.023
Titanium	0.032	0.014

(l) Scrap milling wet air pollution control.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of scrap milled	
Chromium (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Titanium	0.000	0.000

(m) Scrap detergent wash water.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of scrap washed	
Chromium (total)	6.684	2.710
Lead	5.058	2.348
Nickel	9.935	6.684
Titanium	9.574	4.155

(n) Casting crucible wash water.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium cast	
Chromium (total)	0.176	0.072
Lead	0.134	0.062
Nickel	0.262	0.176
Titanium	0.253	0.110

(o) Casting contact cooling water.

PSNS FOR THE PRIMARY AND SECONDARY TITANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of titanium cast	
Chromium (total)	27.000	10.950
Lead	20.430	9.486
Nickel	40.140	27.000
Titanium	38.680	16.780

§ 421.307 [Reserved]

Subpart AC—Secondary Tungsten and Cobalt Subcategory

§ 421.310 Applicability: Description of the secondary tungsten and cobalt subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of tungsten or cobalt at secondary tungsten and cobalt facilities processing tungsten or tungsten carbide scrap raw materials.

§ 421.311 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR Part 401 shall apply to this subpart.

§ 421.312 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

(a) Tungsten detergent wash and rinse.

BPT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten scrap washed	
Copper	0.371	0.195
Nickel	0.374	0.248
Ammonia (as N)	25.990	11.430
Cobalt	0.041	0.018
Tungsten	1.357	0.542
Oil and grease	3.900	2.340
Total suspended solids	7.995	3.803
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(b) Tungsten leaching acid.

BPT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten produced	
Copper	4.885	2.571
Nickel	4.937	3.265
Ammonia (as N)	342.700	150.700
Cobalt	0.540	0.231
Tungsten	17.890	7.147
Oil and grease	51.420	30.850
Total suspended solids	105.400	50.140
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(c) Tungsten post-leaching wash and rinse.

BPT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten produced	
Copper	9.772	5.143
Nickel	9.875	6.532
Ammonia (as N)	685.600	301.400
Cobalt	1.080	0.463
Tungsten	35.800	14.300
Oil and grease	102.900	61.720
Total suspended solids	210.900	100.300
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(d) Synthetic scheelite filtrate.

BPT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of synthetic scheelite produced	
Copper	31.660	16.660
Nickel	31.990	21.160
Ammonia (as N)	2,221.000	976.300
Cobalt	3.499	1.500
Tungsten	116.000	46.320
Oil and grease	333.200	200.000
Total suspended solids	683.100	324.900
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(e) Tungsten carbide leaching wet air pollution control.

BPT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten carbide scrap leached	
Copper	3.327	1.751
Nickel	3.362	2.224
Ammonia (as N)	233.400	102.600
Cobalt	0.368	0.158
Tungsten	12.190	4.868
Oil and grease	35.020	21.010
Total suspended solids	71.790	34.150
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(f) Tungsten carbide wash water.

BPT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten carbide produced	
Copper	15.830	8.333
Nickel	16.000	10.580
Ammonia (as N)	1,111.000	488.300
Cobalt	1.750	0.750
Tungsten	58.000	23.170
Oil and grease	166.700	100.000
Total suspended solids	341.700	162.500
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(g) Cobalt sludge leaching wet air pollution control.

BPT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced from cobalt sludge	
Copper	67.990	35.780
Nickel	68.700	45.440
Ammonia (as N)	4,770.000	2,097.000
Cobalt	7.514	3.220

BPT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Tungsten	249.000	99.470
Oil and grease	715.600	429.400
Total suspended solids	1,467.000	697.700
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(h) Crystallization decant.

BPT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	79.140	41.650
Nickel	79.970	52.900
Ammonia (as N)	5,552.000	2,441.000
Cobalt	8.747	3.749
Tungsten	289.900	115.800
Oil and grease	833.000	499.800
Total suspended solids	1,708.000	812.200
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(i) Acid wash decant.

BPT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	36.220	19.060
Nickel	36.600	24.210
Ammonia (as N)	2,541.000	1,117.000
Cobalt	4.003	1.716
Tungsten	132.700	52.990
Oil and grease	381.300	228.800
Total suspended solids	781.600	371.700
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(j) Cobalt hydroxide filtrate.

BPT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	107.600	56.650
Nickel	108.800	71.940
Ammonia (as N)	7,551.000	3,320.000
Cobalt	11.900	5.098
Tungsten	394.300	157.500
Oil and grease	1,133.000	679.800
Total suspended solids	2,323.000	1,105.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(k) Cobalt hydroxide filter cake wash

BPT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	207.200	109.100
Nickel	209.400	138.500
Ammonia (as N)	14,530.000	6,389.000
Cobalt	22.900	9.813
Tungsten	758.900	303.100
Oil and grease	2,181.000	1,309.000
Total suspended solids	4,471.000	2,126.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.313 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Tungsten detergent wash and rinse.

BAT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten scrap washed	
Copper	0.250	0.119
Nickel	0.107	0.072
Ammonia (as N)	25.990	11.430
Cobalt	0.027	0.014
Tungsten	0.679	0.302

(b) Tungsten leaching acid.

BAT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten produced	
Copper	3.291	1.569
Nickel	1.414	0.951
Ammonia (as N)	342.700	150.700
Cobalt	0.360	0.180
Tungsten	8.947	3.985

(c) Tungsten post-leaching wash and rinse.

BAT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten produced	
Copper	6.583	3.137
Nickel	2.829	1.903
Ammonia (as N)	685.600	301.400
Cobalt	0.720	0.360
Tungsten	17.900	7.972

(d) Synthetic scheelite filtrate.

BAT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of synthetic scheelite produced	
Copper	21.330	10.170
Nickel	9.164	6.165
Ammonia (as N)	2,221.000	976.300
Cobalt	2.333	1.166
Tungsten	57.980	25.820

(e) Tungsten carbide leaching wet air pollution control.

BAT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten carbide scrap leached	
Copper	2.241	1.068
Nickel	0.963	0.648
Ammonia (as N)	233.400	102.600
Cobalt	0.245	0.123
Tungsten	6.093	2.714

(f) Tungsten carbide wash water.

BAT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten carbide produced	
Copper	10.670	5.083
Nickel	4.583	3.083
Ammonia (as N)	1,111.000	488.300
Cobalt	1.167	0.583
Tungsten	29.000	12.920

(g) Cobalt sludge leaching wet air pollution control.

BAT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced from cobalt sludge	
Copper	45.80	21.83
Nickel	19.68	13.24
Ammonia (as N)	4,770.00	2,097.00
Cobalt	5.01	2.51
Tungsten	124.50	55.46

(h) Crystallization decant.

BAT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	53.310	25.410
Nickel	22.910	15.410
Ammonia (as N)	5,552.000	2,441.000
Cobalt	5.831	2.916
Tungsten	144.900	64.560

(i) Acid wash decant.

BAT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	24.400	11.630
Nickel	10.490	7.053
Ammonia (as N)	2,541.000	1,117.000
Cobalt	2.669	1.335
Tungsten	66.340	29.550

(j) Cobalt hydroxide filtrate.

BAT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	72.510	34.560
Nickel	31.160	20.960
Ammonia (as N)	7,551.000	3,320.000
Cobalt	7.931	3.965
Tungsten	197 100	87.800

(k) Cobalt hydroxide filter cake wash.

BAT LIMITATIONS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	139.600	66.510
Nickel	59.870	40.340
Ammonia (as N)	14,530.000	6,389.000
Cobalt	15.270	7.633
Tungsten	379.400	169.000

§ 421.314 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Tungsten detergent wash and rinse.

NSPS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten scrap washed	
Copper	0.250	0.119
Nickel	0.107	0.072
Ammonia (as N)	25.990	11.430
Cobalt	0.027	0.014
Tungsten	0.679	0.302
Oil and Grease	1.950	1.950
Total suspended solids	2.925	2.340
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(b) Tungsten leaching acid.

NSPS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten produced	
Copper	3.291	1.569
Nickel	1.414	0.951
Ammonia (as N)	342.700	150.700
Cobalt	0.360	0.180
Tungsten	8.947	3.985
Oil and Grease	25.710	25.710
Total suspended solids	38.570	30.850
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(c) Tungsten post-leaching wash and rinse.

NSPS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten produced	
Copper	6.583	3.137
Nickel	2.829	1.903
Ammonia (as N)	685.600	301.400
Tungsten	17.900	7.972
Cobalt	0.720	0.360
Oil and Grease	51.430	51.430
Total suspended solids	77.150	61.720
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(d) Synthetic scheelite filtrate.

NSPS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of synthetic scheelite produced	
Copper	21.330	10.170
Nickel	9.164	6.165
Ammonia (as N)	2,221.000	976.300
Cobalt	2.333	1.166
Tungsten	57.980	25.820
Oil and Grease	166.600	166.600
Total suspended solids	249.900	199.900
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(e) Tungsten carbide leaching wet air pollution control.

NSPS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten carbide scrap leached	
Copper	2.241	1.068
Nickel	0.963	0.648
Ammonia (as N)	233.400	102.600
Cobalt	0.245	0.123
Tungsten	6.093	2.714
Oil and Grease	17.510	17.510
Total suspended solids	26.270	21.010
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(f) Tungsten carbide wash water.

NSPS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten carbide produced	
Copper	10.670	5.083
Nickel	4.583	3.083
Ammonia (as N)	1,111.000	488.300
Cobalt	1.167	0.583
Tungsten	29.000	12.920
Oil and Grease	83.330	83.330
Total suspended solids	125.000	100.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(g) Cobalt sludge leaching wet air pollution control.

NSPS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced from cobalt sludge	
Copper	45.80	21.83
Nickel	19.68	13.24
Ammonia (as N)	4,770.00	2,097.00
Cobalt	5.01	2.51
Tungsten	124.50	55.46
Oil and Grease	357.80	357.80
Total suspended solids	536.70	429.40
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(h) Crystallization decant.

NSPS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	53.310	25.410
Nickel	22.910	15.410
Ammonia (as N)	5,552.000	2,441.000
Cobalt	5.831	2.916
Tungsten	144.900	64.560
Oil and Grease	416.500	416.500
Total suspended solids	624.800	499.800
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(i) Acid wash decant.

NSPS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	24.400	11.630
Nickel	10.490	7.053
Ammonia (as N)	2,541.000	1,117.000
Cobalt	2.669	1.335
Tungsten	66.340	29.550
Oil and Grease	190.600	190.600
Total suspended solids	285.900	228.700
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(j) Cobalt hydroxide filtrate.

NSPS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	72.510	34.560
Nickel	31.160	20.960
Ammonia (as N)	7,551.000	3,320.000
Cobalt	7.931	3.965
Tungsten	197.100	87.800
Oil and Grease	566.500	566.500
Total suspended solids	849.700	679.800
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(k) Cobalt hydroxide filter cake wash.

NSPS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	139.600	66.510
Nickel	59.970	40.340
Ammonia (as N)	14,530.000	6,389.000
Cobalt	15.270	7.633
Tungsten	379.400	169.000
Oil and Grease	1,090.000	1,090.000
Total suspended solids	1,636.000	1,308.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.315 Pretreatment standards for existing sources.

Except as provided in 40 CFR 403.7, any existing source subject to this subpart which introduces polutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for existing sources. The mass of wastewater pollutants in secondary tungsten and cobalt process wastewater introduced into a POTW shall not exceed the following values:

(a) Tungsten detergent wash and rinse.

PSES FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten scrap washed	
Copper	0.250	0.119
Nickel	0.107	0.072
Ammonia (as N)	25.990	11.430
Cobalt	0.027	0.014
Tungsten	0.679	0.302

(b) Tungsten leaching acid.

PSES FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten produced	
Copper	3.291	1.569
Nickel	1.414	0.951
Ammonia (as N)	342.700	150.700
Cobalt	0.360	0.180
Tungsten	8.947	3.985

(c) Tungsten post-leaching wash and rinse.

PSES FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten produced	
Copper	6.583	3.137
Nickel	2.829	1.903
Ammonia (as N)	685.600	301.400
Cobalt	0.720	0.360
Tungsten	17.900	7.972

(d) Synthetic scheelite filtrate.

PSES FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of synthetic scheelite produced	
Copper	21.330	10.170
Nickel	9.164	6.165
Ammonia (as N)	2,221.000	976.300
Cobalt	2.333	1.166
Tungsten	57.980	25.820

(e) Tungsten carbide leaching wet air pollution control.

PSES FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten carbide scrap	
Copper	2.241	1.068
Nickel	0.963	0.648
Ammonia (as N)	233.400	102.600
Cobalt	0.245	0.123
Tungsten	6.093	2.714

(f) Tungsten carbide wash water.

PSES FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten carbide produced	
Copper	10.670	5.083
Nickel	4.583	3.083
Ammonia (as N)	1,111.000	488.300
Cobalt	1.167	0.583
Tungsten	29.000	12.920

(g) Cobalt sludge leaching wet air pollution control.

PSES FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced from cobalt sludge	
Copper	45.800	21.830
Nickel	19.680	13.240
Ammonia (as N)	4,770.000	2,097.000
Cobalt	5.010	2.510
Tungsten	124.500	55.460

(h) Crystallization decant.

PSES FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	53.310	25.410
Nickel	22.910	15.410
Ammonia (as N)	5,552.000	2,441.000
Cobalt	5.831	2.916
Tungsten	144.9	64.56

(i) Acid wash decant.

PSES FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	24.400	11.630
Nickel	10.490	7.053
Ammonia (as N)	2,541.000	1,117.000
Cobalt	2.669	1.335
Tungsten	66.34	29.55

(j) Cobalt hydroxide filtrate.

PSES FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	72.510	34.560
Nickel	31.160	20.960
Ammonia (as N)	7,551.000	3,320.000
Cobalt	7.931	3.965
Tungsten	197.1	87.8

(k) Cobalt hydroxide filter cake wash.

PSES FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	139.600	66.510
Nickel	59.970	40.340
Ammonia (as N)	14,530.000	6,389.000
Cobalt	15.270	7.633
Tungsten	379.400	169.000

§ 421.316 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in secondary tungsten and cobalt process wastewater introduced into a POTW shall not exceed the following values:

(a) Tungsten detergent wash and rinse.

PSNS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten scrap washed	
Copper	0.250	0.119
Nickel	0.107	0.072
Ammonia (as N)	25.990	11.430
Cobalt	0.027	0.014
Tungsten	0.679	0.302

(b) Tungsten leaching acid.

PSNS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten produced	
Copper	3.291	1.569
Nickel	1.414	0.951
Ammonia (as N)	342.700	150.700
Cobalt	0.360	0.180
Tungsten	8.947	3.985

(c) Tungsten post-leaching wash and rinse.

PSNS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten produced	
Copper	6.583	3.137
Nickel	2.829	1.903
Ammonia (as N)	685.600	301.400
Cobalt	0.720	0.360
Tungsten	17.900	7.792

(d) Synthetic scheelite filtrate.

PSNS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of synthetic scheelite produced	
Copper	21.330	10.170
Nickel	9.164	6.165
Ammonia (as N)	2,221.000	976.300
Cobalt	2.333	1.166
Tungsten	57.980	25.820

(e) Tungsten carbide leaching wet air pollution control.

PSNS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten carbide scrap leached	
Copper	2.241	1.068
Nickel	0.963	0.648
Ammonia (as N)	233.400	102.600
Cobalt	0.245	0.123
Tungsten	6.093	2.714

(f) Tungsten carbide wash water.

PSNS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of tungsten carbide produced	
Copper	10.670	5.083
Nickel	4.583	3.083
Ammonia (as N)	1,111.000	488.300
Cobalt	1.167	0.583
Tungsten	29.000	12.920

(g) Cobalt sludge leaching wet air pollution control.

PSNS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced from cobalt sludge	
Copper	45.800	21.830
Nickel	19.680	13.240
Ammonia (as N)	4,770.000	2,097.000
Cobalt	5.010	2.510
Tungsten	124.500	55.460

(h) Crystallization decant.

PSNS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	53.310	25.410
Nickel	22.910	15.410
Ammonia (as N)	5,552.000	2,441.000
Cobalt	5.831	2.916
Tungsten	144.900	64.560

(i) Acid wash decant.

PSNS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	24.400	11.630
Nickel	10.490	7.053
Ammonia (as N)	2,541.000	1,117.000
Cobalt	2.669	1.335
Tungsten	66.340	29.550

(j) Cobalt hydroxide filtrate.

PSNS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	72.510	34.560
Nickel	31.160	20.960
Ammonia (as N)	7,551.000	3,320.000
Cobalt	7.931	3.965
Tungsten	197.100	87.800

(k) Cobalt hydroxide filter cake wash.

PSNS FOR THE SECONDARY TUNGSTEN AND COBALT SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of cobalt produced	
Copper	139.600	66.510
Nickel	59.970	40.430
Ammonia (as N)	14,530.000	6,389.000
Cobalt	15.270	7.633
Tungsten	379 400	169.000

§ 421.317 [Reserved]

Subpart AD—Secondary Uranium Subcategory

§ 421.320 Applicability: Description of the secondary uranium subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of uranium (including depleted uranium) by secondary uranium facilities.

§ 421.321 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR Part 401 shall apply to this subpart.

§ 421.322 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practiacable technology currently available:

(a) Refinery sump filtrate.

BPT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium	32.270	13.200
Copper	139.300	73.340
Nickel	140.800	93.140
Fluoride	2,567.000	1,459.000
Total suspended solids	3,007.000	1,430.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(b) Slag leach reslurry.

BPT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	2 009	0.822
Copper	8.675	4.566
Nickel	8.767	5.799
Fluoride	159.800	90.860
Total suspended solids	187.200	89.040
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Solvent extraction raffinate filtrate.

BPT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	2.802	1.146
Copper	12.100	6.369
Nickel	12.230	8.089
Fluoride	222.900	126.700
Total suspended solids	261.100	124.200
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times

(d) Digestion wet air pollution control.

BPT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Nickel	0.000	0.000
Fluoride	0.000	0.000
Total suspended solids	0.000	0 000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(e) Evaporation and denitration wet air pollution control.

BPT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium trioxide produced	
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Nickel	0.000	0.000
Fluoride	0.000	0.000
Total suspended solids	0.000	0.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times

(f) Hydrofluorination alkaline scrubber.

BPT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium tetrafluoride produced	
Chromium (total)	0.009	0.004
Copper	0.038	0.020
Nickel	0.038	0.025
Fluoride	0.700	0.398
Total suspended solids	0.820	0.390
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(g) Hydrofluorination water scrubber.

BPT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium tetrafluoride produced	
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Nickel	0.000	0.000
Fluoride	0.000	0.000
Total suspended solids	0.000	0.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(h) Magnesium reduction and casting floor wash.

BPT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium produced by magnesium reduction	
Chromium (total)	0.013	0.005
Copper	0.057	0.030
Nickel	0.058	0.038
Fluoride	1.054	0.599
Total suspended solids	1.234	0.587
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times

(i) Laundry wastewater.

BPT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium produced by magnesium reduction	
Chromium (total)	0.084	0.035
Copper	0.365	0.192
Nickel	0.369	0.244
Fluoride	6.720	3.821
Total suspended solids	7.872	3.744
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

§ 421.323 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Refinery sump filtrate.

BAT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	27.14	11.00
Copper	93.88	44.74
Nickel	40.34	27.14
Fluoride	2,567.00	1,459.00

(b) Slag leach reslurry.

BAT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	1.689	0.685
Copper	5.844	2.785
Nickel	2.511	1.689
Fluoride	159.800	90.860

(c) Solvent extraction raffinate filtrate.

BAT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	2.357	0.955
Copper	8.152	3.885
Nickel	3.503	2.357
Fluoride	222.900	126.700

(d) Digestion wet air pollution control.

BAT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Nickel	0.000	0.000
Fluoride	0.000	0.000

(e) Evaporation and denitration wet air pollution control.

BAT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium trioxide produced	
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Nickel	0.000	0.000
Fluoride	0.000	0.000

(f) Hydrofluorination alkaline scrubber.

BAT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium tetrafluoride produced	
Chromium (total)	0.007	0.003
Copper	0.026	0.012
Nickel	0.011	0.007
Fluoride	0.700	0.398

(g) Hydrofluorination water scrubber.

BAT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium tetrafluoride produced	
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Nickel	0.000	0.000
Fluoride	0.000	0.000

(h) Magnesium reduction and casting floor wash.

BAT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium produced by magnesium reduction	
Chromium (total)	0.011	0.005
Copper	0.039	0.018
Nickel	0.017	0.011
Fluoride	1.054	0.599

(i) Laundry wastewater.

BAT LIMITATIONS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium produced by magnesium reduction	
Chromium (total)	0.036	0.014
Copper	0.123	0.059
Nickel	0.053	0.036
Fluoride	3.360	1.910

§ 421.324 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Refinery sump filtrate.

NSPS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	27.14	11.00
Copper	93.88	44.74
Nickel	40.34	27.14
Fluoride	2,567.00	1,459.00
Total suspended solids	1,100.00	880.10
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(b) Slag leach reslurry.

NSPS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	1.689	0.685
Copper	5.844	2.785
Nickel	2.511	1.689
Fluoride	159.800	90.860
Total suspended solids	68.490	54.790
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(c) Solvent extraction raffinate filtrate.

NSPS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	2.357	0.955
Copper	8.152	3.885
Nickel	3.503	2.357
Fluoride	222.900	126.700
Total suspended solids	95.540	76.430
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(d) Digestion wet air pollution control.

NSPS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Nickel	0.000	0.000
Fluoride	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(e) Evaporation and denitration wet air pollution control

NSPS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium trioxide produced	
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Nickel	0.000	0.000
Fluoride	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(f) Hydrofluorination alkaline scrubber.

NSPS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium tetrafluoride produced	
Chromium (total)	0.007	0.003
Copper	0.026	0.012
Nickel	0.011	0.007
Fluoride	0.700	0.398
Total suspended solids	0.300	0.240
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(g) Hydrofluorination water scrubber.

NSPS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium tetrafluoride produced	
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Nickel	0.000	0.000
Fluoride	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(h) magnesium reduction and casting floor wash.

NSPS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium produced by magnesium reduction	
Chromium (total)	0.011	0.005
Copper	0.039	0.018
Nickel	0.017	0.011
Fluoride	1.054	0.509
Total suspended solids	0.452	0.361
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(i) Laundry wastewater.

NSPS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium produced by magnesium reduction	
Chromium (total)	0.036	0.014
Copper	0.123	0.059
Nickel	0.053	0.036
Fluoride	3.360	1.910
Total suspended solids	1.440	1.152
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

§ 421.325 [Reserved]

§ 421.326 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in secondary uranium process wastewater introduced into a POTW shall not exceed the following values:

(a) Refinery sump filtrate.

PSNS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	27.14	11.00
Copper	93.88	44.74
Nickel	40.34	27.14
Fluoride	2,567.00	1,459.00

(b) Slag leach reslurry.

PSNS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	1.689	0.685
Copper	5.844	2.785
Nickel	2.511	1.689
Fluoride	159.800	90.860

(c) Solvent extraction raffinate filtrate.

PSNS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutast or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	2.357	0.955
Copper	8.152	3.885
Nickel	3.503	2.357
Fluoride	222.900	126.700

(d) Digestion wet air pollution control.

PSNS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium processed in the refinery	
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Nickel	0.000	0.000
Fluoride	0.000	0.000

(e) Evaporation and denitration wet air pollution control.

PSNS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium trioxide produced	
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Nickel	0.000	0.000
Fluoride	0.000	0.000

(f) Hydrofluorination alkaline scrubber.

PSNS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium tetrafluoride produced	
Chromium (total)	0.007	0.003
Copper	0.026	0.012
Nickel	0.011	0.007
Fluoride	0.700	0.398

(g) Hydrofluorination water scrubber.

PSNS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium tetrafluoride produced	
Chromium (total)	0.000	0.000
Copper	0.000	0.000
Nickel	0.000	0.000
Fluoride	0.000	0.000

(h) Magnesium reduction and casting floor wash.

PSNS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium trioxide produced	
Chromium (total)	0.011	0.005
Copper	0.039	0.018
Nickel	0.017	0.011
Fluoride	1.054	0.599

(i) Laundry wastewater.

PSNS FOR THE SECONDARY URANIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of uranium produced by magnesium reduction	
Chromium (total)	0.036	0.014
Copper	0.123	0.059
Nickel	0.053	0.036
Fluoride	3.360	1.910

§ 421.327 [Reserved]

Subpart AE—Primary Zirconium and Hafnium Subcategory

§ 421.330 Applicability: Description of the primary zirconium and hafnium subcategory.

The provisions of this subpart are applicable to discharges resulting from the production of zirconium or hafnium at primary zirconium and hafnium facilities. There are two levels of BPT, BAT, NSPS, PSES and PSNS provisions for this subpart. Facilities which only produce zirconium or zirconium/nickel alloys by magnesium reduction of zirconium dioxide are exempt from regulations. All other facilities are subject to these regulations.

§ 421.331 Specialized definitions.

For the purpose of this subpart the general definitions, abbreviations, and methods of analysis set forth in 40 CFR Part 401 shall apply to this subpart.

§ 421.332 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable technology currently available:

(a) Sand drying wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	0.250	0.102
Cyanide (total)	0.165	0.068
Lead	0.239	0.114
Nickel	1.091	0.721
Ammonia (as N)	75.710	33.280
Total suspended solids	23.290	11.080
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(b) Sand chlorination off-gas wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zironium dioxide and hafnium dioxide produced	
Chromium (total)	19.130	7.825
Cyanide (total)	12.610	5.216
Lead	18.260	8.694
Nickel	83.460	55.210
Ammonia (as N)	5,795.000	2,547.000
Total suspended solids	1,782.000	847.700
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(c) Sand chlorination area-vent wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	3.751	1.534
Cyanide (total)	2.472	1.023
Lead	3.580	1.705
Nickel	16.370	10.830
Ammonia (as N)	1,136.000	449.500
Total suspended solids	349.500	166.200
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(d) $SiCl_4$ purification wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	3.299	1.350
Cyanide (total)	2.174	0.900
Lead	3.149	1.500
Nickel	14.400	9.522
Ammonia (as N)	999.500	439.400
Total suspended solids	307.400	146.200
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(e) Feed makeup wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	2.501	1.023
Cyanide (total)	1.648	0.682
Lead	2.387	1.137
Nickel	10.910	7.217
Ammonia (as N)	757.500	333.000
Total suspended solids	233.000	110.800
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(f) Iron extraction (MIBK) steam stripper bottoms.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	0.987	0.404
Cyanide (total)	0.651	0.269
Lead	0.942	0.449
Nickel	4.308	2.850
Ammonia (as N)	299.100	131.500
Total suspended solids	92.000	43.760
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(g) Zirconium filtrate.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	17.070	6.982
Cyanide (total)	11.250	4.655
Lead	16.290	7.758
Nickel	74.480	49.260
Ammonia (as N)	5,171.000	2,273.000
Total suspended solids	1,590.000	756.400
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(h) Hafnium filtrate.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	0.000	0.000
Cyanide (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Ammonia (as N)	0.000	0.000
Total suspended solids	0.000	0.000
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(i) Calcining caustic wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	3.959	1.819
Cyanide (total)	2.609	1.080
Lead	3.779	1.799
Nickel	17.270	11.430
Ammonia (as N)	1,199.000	527.200
Total suspended solids	368.900	175.400
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(j) Pure chlorination wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	16.860	6.897
Cyanide (total)	11.110	4.598
Lead	16.090	7.663
Nickel	73.570	48.660
Ammonia (as N)	5,108.000	2,245.000
Total suspended solids	1,571.000	747.200
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(k) Reduction area-vent wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	1.622	0.663
Cyanide (total)	1.069	0.442
Lead	1.548	0.737
Nickel	7.077	4.681
Ammonia (as N)	491.300	216.000
Total suspended solids	151.100	71.880
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(l) Magnesium recovery off-gas wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	9.123	3.732
Cyanide (total)	6.013	2.488
Lead	8.708	4.147
Nickel	39.810	26.330
Ammonia (as N)	2,764.000	1,215.000
Total suspended solids	850.100	404.300
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0 at all times.

(m) Magnesium recovery area-vent wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	5.068	2.073
Cyanide (total)	3.340	1.382
Lead	4.838	2.304
Nickel	22.110	14.630
Ammonia (as N)	1,535.000	675.000
Total suspended solids	472.200	224.600
pH	(¹)	(¹)

¹ Within the range of 7.5 to 10.0.

(n) Zirconium chip crushing wet air pollution control.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	0.000	0.000
Cyanide (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Ammonia (as N)	0.000	0.000
Total suspended solids	0.000	0.000

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(o) Acid leachate from zirconium metal production.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of pure zirconium produced	
Chromium (total)	12.970	5.304
Cyanide (total)	8.545	3.536
Lead	12.380	5.893
Nickel	56.570	37.420
Ammonia (as N)	3,928.000	1,727.000
Total suspended solids	1,208.000	574.600
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(p) Acid leachate from zirconium alloy production.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium contained in alloys produced	
Chromium (total)	6.939	2.839
Cyanide (total)	4.574	1.893
Lead	6.624	3.154
Nickel	30.280	20.030
Ammonia (as N)	2,102.000	924.200
Total suspended solids	646.600	307.600
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(q) Leaching rinse water from zirconium metal production.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium produced	
Chromium (total)	25.930	10.610
Cyanide (total)	17.090	7.072
Lead	24.750	11.790
Nickel	113.200	74.640
Ammonia (as N)	7,856.000	3,453.000
Total suspended solids	2,416.000	1,149.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0.

(r) Leaching rinse water from zirconium alloy production.

BPT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium in alloys produced	
Chromium (total)	0.347	0.142
Cyanide (total)	0.229	0.095
Lead	0.331	0.158
Nickel	1.515	1.002
Ammonia (as N)	105.200	46.240
Total suspended solids	32.350	15.390
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

§ 421.333 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable.

Except as provided in 40 CFR 125.30 through 125.32, any existing point source subject to this subpart shall achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable:

(a) Sand drying wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	0.210	0.085
Cyanide (total)	0.114	0.045
Lead	0.159	0.074
Nickel	0.312	0.210
Ammonia (as N)	75.710	33.280

(b) Sand chlorination off-gas wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	16.080	6.521
Cyanide (total)	8.694	3.478
Lead	12.170	5.651
Nickel	23.910	16.080
Ammonia (as N)	5,795.000	2,547.000

(c) Sand chlorination area-vent wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	3.154	1.279
Cyanide (total)	1.705	0.682
Lead	2.387	1.108
Nickel	4.688	3.154
Ammonia (as N)	1,136.000	499.500

(d) $SiCl_4$ purification wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	2.774	1.125
Cyanide (total)	1.500	0.600
Lead	2.099	0.975
Nickel	4.124	2.774
Ammonia (as N)	999.500	439.400

(e) Feed makeup wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	2.103	0.852
Cyanide (total)	1.137	0.455
Lead	1.591	0.739
Nickel	3.126	2.103
Ammonia (as N)	757.500	333.000

(f) Iron extraction (MIBK) steam stripper bottoms.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	0.830	0.337
Cyanide (total)	0.449	0.180
Lead	0.628	0.292
Nickel	1.234	0.830
Ammonia (as N)	299.100	131.500

(g) Zirconium filtrate.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	14.350	5.819
Cyanide (total)	7.758	3.103
Lead	10.860	5.043
Nickel	21.330	14.350
Ammonia (as N)	5,171.000	2,273.00

(h) Hafnium filtrate.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	0.000	0.000
Cyanide (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Ammonia (as N)	0.000	0.000

(i) Calcining caustic wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	3.329	1.350
Cyanide (total)	1.799	0.720
Lead	2.519	1.170
Nickel	4.948	3.329
Ammonia (as N)	1,199.000	527.200

(j) Pure chlorination wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	14.180	5.748
Cyanide (total)	7.663	3.065
Lead	10.730	4.981
Nickel	21.070	14.180
Ammonia (as N)	5,108.000	2,245.000

(k) Reduction area-vent wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY ZIROCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	1.364	0.553
Cyanide (total)	0.737	0.295
Lead	1.032	0.479
Nickel	2.027	1.364
Ammonia (as N)	491.300	216.000

(l) Magnesium recovery off-gas wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	7.671	3.110
Cyanide (total)	4.147	1.659
Lead	5.805	2.695
Nickel	11.400	7.671
Ammonia (as N)	2,764.000	1,215.000

(m) Magnesium recovery area-vent wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	4.262	1.728
Cyanide (total)	2.304	0.921
Lead	3.225	1.497
Nickel	6.335	4.262
Ammonia (as N)	1,535.000	675.000

(n) Zirconium chip crushing wet air pollution control.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	0.000	0.000
Cyanide (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Ammonia (as N)	0.000	0.000

(o) Acid leachate from zirconium metal production.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of pure zirconium produced	
Chromium (total)	10.900	4.420
Cyanide (total)	5.893	2.357
Lead	8.250	3.831
Nickel	16.210	10.900
Ammonia (as N)	3,928.000	1,674.000

(p) Acid leachate from zirconium alloy production.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium contained in alloys produced	
Chromium (total)	5.835	2.366
Cyanide (total)	3.154	1.262
Lead	4.416	2.050
Nickel	8.674	5.835
Ammonia (as N)	2,102.000	895.000

(q) Leaching rinse water from zirconium metal production.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of pure zirconium produced	
Chromium (total)	21.810	8.840
Cyanide (total)	11.790	4.715
Lead	16.500	7.661
Nickel	32.410	21.810
Ammonia (as N)	7,856.000	3,453.000

(r) Leaching rinse water from zirconium alloy production.

BAT LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium contained in alloys produced	
Chromium (total)	0.292	0.118
Cyanide (total)	0.158	0.063
Lead	0.221	0.103
Nickel	0.434	0.292
Ammonia (as N)	105.200	46.240

§ 421.334 Standards of performance for new sources.

Any new source subject to this subpart shall achieve the following new source performance standards:

(a) Sand drying wet air pollution control.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	0.210	0.085
Cyanide (total)	0.114	0.045
Lead	0.159	0.074
Nickel	0.312	0.210
Ammonia (as N)	75.710	33.280
Total suspended solids	8.520	6.816
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(b) Sand chlorination off-gas wet air pollution control.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	16.080	6.521
Cyanide (total)	8.694	3.478
Lead	12.170	5.651
Nickel	23.910	16.080
Ammonia (as N)	5,795.000	2,547.000
Total suspended solids	652.100	521.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(c) Sand chlorination area-vent wet air pollution control.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	3.154	1.279
Cyanide (total)	1.705	0.682
Lead	2.387	1.108
Nickel	4.688	3.154
Ammonia (as N)	1,136.000	499.500
Total suspended solids	127.900	102.300
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(d) SiC_{14} purification wet air pollution control.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	2.774	1.125
Cyanide (total)	1.500	0.600
Lead	2.099	0.975
Nickel	4.124	2.774
Ammonia (as N)	999.500	439.400
Total suspended solids	112.500	89.980
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(e) Feed makeup wet air pollution control.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	2.103	0.852
Cyanide (total)	1.137	0.455
Lead	1.591	0.739
Nickel	3.126	2.103
Ammonia (as N)	757.500	333.000
Total suspended solids	85.250	68.200
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(f) Iron extraction (MIBK) steam stripper bottoms.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	0.830	0.337
Cyanide (total)	0.449	0.180
Lead	0.628	0.292
Nickel	1.234	0.830
Ammonia (as N)	299.100	131.500
Total suspended solids	33.660	26.930
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(g) Zirconium filtrate.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	14.350	5.819
Cyanide (total)	7.758	3.103
Lead	10.860	5.043
Nickel	21.330	14.350

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
Ammonia (as N)	5,171.000	2,273.000
Total suspended solids	581.900	465.500
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(h) Hafnium filtrate.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	0.000	0.000
Cyanide (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Ammonia (as N)	0.000	0.000
Total suspended solids	0.000	0.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(i) Calcining caustic wet air pollution control.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	3.329	1.350
Cyanide (total)	1.799	0.720
Lead	2.519	1.170
Nickel	4.948	3.329
Ammonia (as N)	1,199.000	527.200
Total suspended solids	135.000	108.000
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(j) Pure chlorination wet air pollution control.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	14.180	5.748
Cyanide (total)	7.663	3.065
Lead	10.730	4.981
Nickel	21.070	14.180
Ammonia (as N)	5,108.000	2,245.000
Total suspended solids	574.800	459.800
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(k) Reduction area-vent wet air pollution control.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	1.364	0.553
Cyanide (total)	0.737	0.295
Lead	1.032	0.479
Nickel	2.027	1.364
Ammonia (as N)	491.300	216.000
Total suspended solids	55.290	44.230
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(l) Magnesium recovery off-gas wet air pollution control.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	7.671	3.110
Cyanide (total)	4.147	1.659
Lead	5.805	2.695
Nickel	11.400	7.671
Ammonia (as N)	2,764.000	1,215.000
Total suspended solids	404.300	248.800
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(m) Magnesium recovery area-vent wet air pollution control.

NSPS LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	4.262	1.728
Cyanide (total)	2.304	0.921
Lead	3.225	1.497
Nickel	6.335	4.262
Ammonia (as N)	1,535.000	675.000
Total suspended solids	172.800	138.200
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(n) Zirconium chip crushing west air pollution control.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	0.000	0.000
Cyanide (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Ammonia (as N)	0.000	0.000
Total suspended solids	0.000	0.000

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY—Continued

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(o) Acid leachate from zirconium metal production.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of pure zirconium produced	
Chromium (total)	10.900	4.420
Cyanide (total)	5.893	2.357
Lead	8.250	3.831
Nickel	16.210	10.900
Ammonia (as N)	3,928.000	1,674.000
Total suspended solids	442.000	353.600
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(p) Acid leachate from zirconium alloy production.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium contained in alloys produced	
Chromium (total)	5.835	2.366
Cyanide (total)	3.154	1.262
Lead	4.416	2.050
Nickel	8.674	5.835
Ammonia (as N)	2,102.000	895.800
Total suspended solids	236.600	189.300
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(q) Leaching rinse water from zirconium metal production.

NSPS LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of pure zirconium produced	
Chromium (total)	21.810	8.840
Cyanide (total)	11.790	4.715
Lead	16.500	7.661
Nickel	32.410	21.810
Ammonia (as N)	7,856.000	3,453.000
Total suspended solids	884.000	707.200
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

(r) Leaching rinse water from zirconium alloy production.

NSPS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium contained in alloys produced	
Chromium (total)	0.292	0.118
Cyanide (total)	0.158	0.063
Lead	0.221	0.103
Nickel	0.434	0.292
Ammonia (as N)	105.200	46.240
Total suspended solids	11.840	9.468
pH	(1)	(1)

[1] Within the range of 7.5 to 10.0 at all times.

§ 421.335 [Reserved]

§ 421.336 Pretreatment standards for new sources.

Except as provided in 40 CFR 403.7, any new source subject to this subpart which introduces pollutants into a publicly owned treatment works must comply with 40 CFR Part 403 and achieve the following pretreatment standards for new sources. The mass of wastewater pollutants in primary zirconium and hafnium process wastewater introduced into a POTW shall not exceed the following values:

(a) Sand drying wet air pollution control.

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	0.210	0.085
Cyanide (total)	0.114	0.045
Lead	0.159	0.074
Nickel	0.312	0.210
Ammonia (as N)	75.710	33.280

(b) Sand chlorination off-gas wet air pollution control

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	16.060	6.521
Cyanide (total)	8.690	3.478
Lead	12.170	5.651
Nickel	23.910	16.080
Ammonia (as N)	5,795.000	2,547.000

(c) Sand chlorination area vent wet air pollution control

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	3.154	1.279
Cyanide (total)	1.705	0.682
Lead	2.387	1.108
Nickel	4.688	3.154
Ammonia (as N)	1,136.000	499.500

(d) $SiCl_4$ purification wet air pollution control.

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	2.774	1.125
Cyanide (total)	1.500	0.600
Lead	2.099	0.975
Nickel	4.124	2.774
Ammonia (as N)	999.500	439.400

(e) Feed makeup wet air pollution control.

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	2.103	0.852
Cyanide (total)	1.137	0.455
Lead	1.591	0.739
Nickel	3.126	2.103
Ammonia (as N)	757.500	333.000

(f) Iron extraction (MIBK) steam stripper bottoms.

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	0.830	0.337
Cyanide (total)	0.449	0.180
Lead	0.628	0.292
Nickel	1.234	0.830
Ammonia (as N)	299.100	131.500

(g) Zirconium filtrate.

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	14.350	5.819
Cyanide (total)	7.756	3.103
Lead	10.860	5.043
Nickel	21.340	14.350
Ammonia (as N)	5,171.000	2,273.000

(h) Hafnium filtrate

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	0.000	0.000
Cyanide (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Ammonia (as N)	0.000	0.000

(i) Calcining caustic wet air pollution control.

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium dioxide and hafnium dioxide produced	
Chromium (total)	3.329	1.350
Cyanide (total)	1.799	0.720
Lead	2.519	1.170
Nickel	4.948	3.329
Ammonia (as N)	1,199.000	527.200

(j) Pure chlorination wet air pollution control.

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	14.180	5.748
Cyanide (total)	7.663	3.065
Lead	10.730	4.981
Nickel	21.007	14.180
Ammonia (as N)	5,108.000	2,245.000

(k) Reduction area-vent wet air pollution control.

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of Zirconium and hafnium produced	
Chromium (total)	1.364	0.553
Cyanide (total)	0.737	0.295
Lead	1.032	0.479
Nickel	2.027	1.364
Ammonia (as N)	491.300	216.000

(l) Magnesium recovery off-gas wet air pollution control.

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	7.671	3.110
Cyanide (total)	4.147	1.659
Lead	5.805	2.695
Nickel	11.400	7.671
Ammonia (as N)	2,764.000	1,215.000

(m) Magnesium recovery area-vent wet air pollution control.

PSNS LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	4.262	1.728
Cyanide (total)	2.304	0.921
Lead	3.225	1.497
Nickel	6.335	4.262
Ammonia (as N)	1,535.000	675.00

(m) Zirconium chip crushing wet air pollution control.

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium and hafnium produced	
Chromium (total)	0.000	0.000
Cyanide (total)	0.000	0.000
Lead	0.000	0.000
Nickel	0.000	0.000
Ammonia (as N)	0.000	0.000

(o) Acid leachate from zirconium metal production.

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of pure zirconium produced	
Chromium (total)	10.900	4.420
Cyanide (total)	5.893	2.357
Lead	8.250	3.831
Nickel	16.210	10.900
Ammonia (as N)	3,928.000	1,674.00

(p) Acid leachate from zirconium alloy production.

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium contained in alloys produced	
Chromium (total)	5.835	2.366
Cyanide (total)	3.154	1.262
Lead	4.416	2.050
Nickel	8.674	5.835
Ammonia (as N)	2,102.000	895.800

(q) Leaching rinse water from zirconium metal production.

PSNS LIMITATIONS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of pure zirconium produced	
Chromium (total)	21.810	8.840
Cyanide (total)	11.790	4.715
Lead	16.500	7.661
Nickel	32.410	21.810
Ammonia (as N)	7,856.000	3,453.000

(r) Leaching rinse water from zirconium alloy production.

PSNS FOR THE PRIMARY ZIRCONIUM AND HAFNIUM SUBCATEGORY

Pollutant or pollutant property	Maximum for any 1 day	Maximum for monthly average
	mg/kg (pounds per million pounds) of zirconium contained in alloys produced	
Chromium (total)	0.292	0.118
Cyanide (total)	0.158	0.063
Lead	0.221	0.103
Nickel	0.434	0.292
Ammonia (as N)	105.200	46.240

§ 421.337 [Reserved]

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